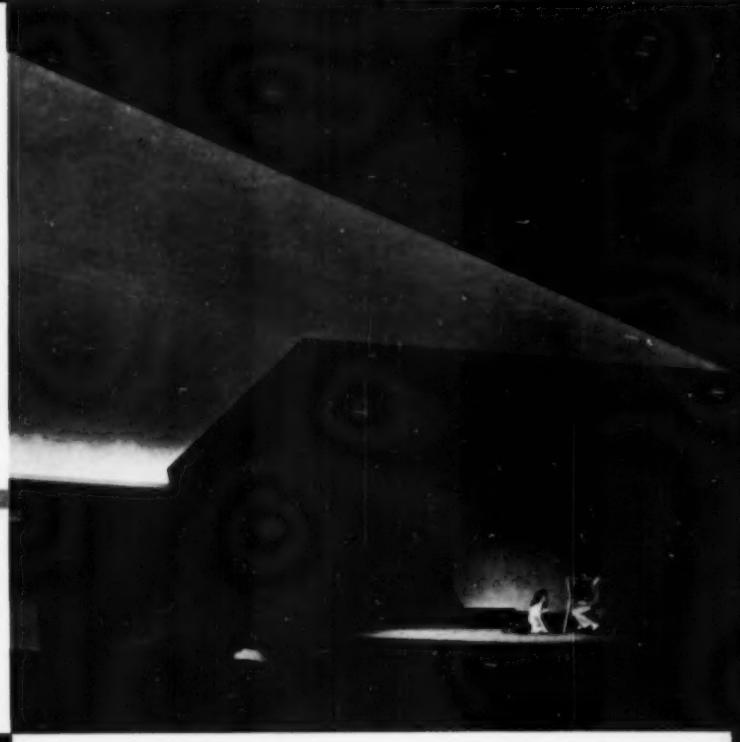
Progressive Architecture

religion and culture



world's largest architectural circulation

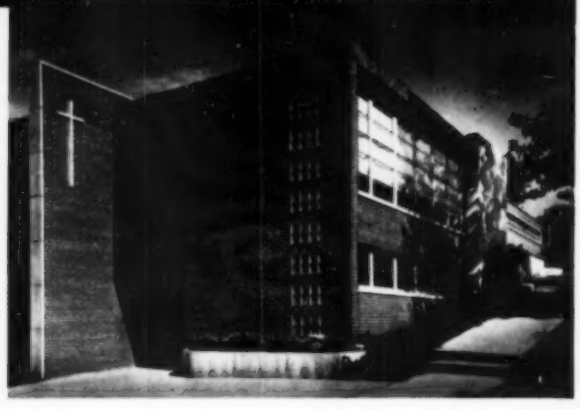
8

august 1954

Mill Plain School, Fairfield, Conn. Archt.—Lyons & Mathers; Engr.—Ernest Mortensen; Contr.—E. & F. Construction Co.; Pozzolith Ready-Mixed Concrete supplied by Leverty & Hurley Co., and Silliman & Godfrey Co.—all of Bridgeport, Conn.

North of the River High School, Bakersfield, Calif. Archt.—Alford & Thomas, Bakersfield; Engr.—Hillman & Nowell, Los Angeles; Contr.—Guy E. Hall, Bakersfield. Pozzolith Ready-Mixed Concrete supplied by Kern Rock Products Co., Bakersfield.

St. Joseph's School, Rockdale, Illinois. Archt.—Edo J. Belli, Chicago; Contr.—A. A. Rose Construction Co., Inc., Chicago. Pozzolith used in all concrete.



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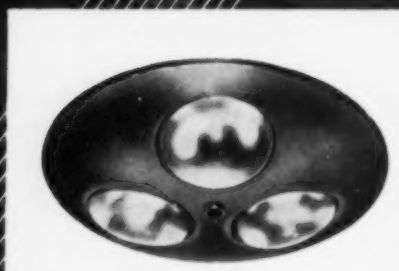

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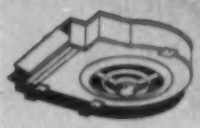

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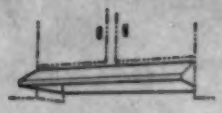

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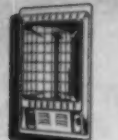

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pa newsletter

August 1954

Million-dollar drive to expand applied research in architecture and related fields has been announced by Douglas W. Orr, President of American Architectural Foundation Larger portion of money collected will be invested, with proceeds from investments used to sponsor suggested projects by AIA's Education and Research Committee. Early this month campaign chairmen will be appointed in each AIA chapter to organize campaign teams to make individual appeals to architects in respective areas.

According to Department of Army figures, Corps of Engineers during '52 and '53 awarded approximately 1600 contracts to nearly 800 architect-engineers for design and inspection of construction in connection with its military construction program. Firms receiving contracts are located throughout U. S. with awards totaling approximately $70 millions.

Scheduled for completion and occupancy early next year, $2½-millions National Housing Center in Washington, D. C. will serve as headquarters for National Association of Home Builders and as permanent exhibition center for materials, equipment, and services concerned with housing construction. NAHB's Housing Research Institute and reference library of housing publications will also be located in Center.

United Nations Economic Commission for Europe's "Quarterly Bulletin of Housing and Building Statistics," published recently, shows expanding dwelling construction in almost all European countries with increase in past year particularly notable in France, Western Germany, Italy, and the United Kingdom. Higher nonresidential building is shown in the Netherlands, Norway, and the United Kingdom.

Carnegie Institute of Technology has announced appointment of Norman Lewis Rice as Dean, College of Fine Arts, effective last month. . . . Harold Hauf leaves Directorship of AIA's Public and Professional Relations to become head of Rensselaer Polytechnic Institute's Department of Architecture, October 1. Hauf succeeds Donald Mochon, Associate Professor of Architecture, who intends to extend consulting work. . . . University of Michigan's College of Architecture and Design awarded Harley, Ellington & Day Scholarship to J. Sterling Crandall of Ann Arbor. Scholarship is awarded to outstanding student entering senior year of architectural design.

Composed of community leaders from all parts of country, International Council has been formed to help carry out Museum of Modern Art's International Exhibitions Program. Council will supplement International Program's foreign and U. S. exhibitions by arranging conferences, publications, other special activities.

U. S. Commerce and Labor Departments have boosted joint estimate of 1954 new construction outlays by $2 billions to record $36 billions. According to agencies, higher forecast "results largely from a higher level of new home building so far this year than was expected last November." New estimate also revealed "most other types of civilian construction also are showing greater activity than previously anticipated and are expected to reach record or near record levels."

Turn page for WASHINGTON PERSPECTIVE

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newsletter

Frederick Gutheim Washington Perspective

The failure of the Geneva conference to reduce Communist pressures and its revelation of Western disunity has alarmed the Capital to a degree unequalled in recent years, and has produced an urgent Pentagon demand for accelerated mobilization, to a degree equalling that proposed in the politically unpopular universal military training bill. Further defense expenditures are in prospect. Also spurred to greater activity were the strategists in critical raw materials, and civil defense authorities. Geneva disclosed equally our steadily deteriorating international leadership. Relations with Britain are strained by distrust and misgivings. In Italy our position loses ground from crisis to crisis. Tension over prolonged resistance to Communism in Southeast Asia and difficulties in accepting European unity and defense proposals have seriously weakened one French government after another. West Germany's part in the proposed European army and policies involved in the unification of Germany threaten the Adenauer government. The entire scene presses international and military factors into any Washington decisions. One may expect increasing activity to construct troop housing and warehouses; fresh commitments for AEC installations; stimulation of electrification and industrial production facilities. Cuts in these areas accounted for the larger part of the 40 percent reduction in Federal construction awards last year. But the longer view shows a more disturbing state of affairs. In Washington, talk of the possibility of war, however defined, is leading in familiar channels. The fundamental need for materials control, forgotten for two years now, is about to be reappraised. With any tightening of military preparations, even considerably short of mobilization, the Government will probably have to consider new problems of inflation and rationing. It may be hard to say how and when all this will affect architectural activity, but the prospect of "building as usual" does not strike me as particularly bright. Half way through the year, the building boom has developed unprecedented magnitude. Measured in dollar volume, residential building is 13 percent ahead of last year; nonresidential building is up 21 percent, with nearly all building types sharing the gain. Whether this performance will be increased, and how long it will be maintained, may be matters of conjecture, but from here the outlook is excellent for the rest of this year and into the unpredictable beyond.

There is as yet little disposition to carry dissatisfaction with the Federal Housing Administration beyond the limited area of "irregularities" in handling windfall profits on 608 jobs and promoting Title I repair work. Most architects who have chafed under FHA regulations and design restrictions would welcome a broader type of inquiry that would go into the factors influencing FHA's end product. Gains from the investigation now under way are likely to be of a different kind. The White House and Congress alike view with growing dissatisfaction the relatively autonomous status of FHA, which has removed its decisions from any effective review, supervision, or responsibility by the Housing and Home Finance Agency. Any proposed FHA reforms are likely to include a return to the stronger central organizational pattern of the former National Housing Agency. Another possible area of reform is the strengthening of FHA district offices to give them more responsibility for decisions in FHA state headquarters. If FHA can be strengthened to resist local pressures and influences by special building and financial interests, it would probably be able to do better in the eyes of architects.

A subcommittee headed by Representative Howell of New Jersey recently considered a group of bills to increase Federal participation in the arts. While there is little prospect for immediate action, some relatively stronger legislative formula for this ancient question ought to emerge in the next session. A national music center for Washington and some form of Federal grant-in-aid for the fine arts are the most likely prospects. The Fine Arts Commission, which last year reported on these questions at some length, departed from its usual judicial attitude to make a useful contribution to these hearings. Last month the Commission acquired a new executive officer, Linton R. Wilson, a Washington naval officer and architect, formerly associated with Voorhees, Walker, Foley & Smith.

An even dozen of these columns having now been written, your delineator would like to inquire if he is keeping things in proportion as well as in perspective. Our personal and private poll would like to determine if there are Washington topics of interest to architects, that we are neglecting. Communications may be sent to the author at 724 Transportation Building, Washingon 6, D. C. In the spirit of times that has caused one local divine to classify his sermons "sacred" and "top sacred," any reservations about the identity of the correspondent will be respected.

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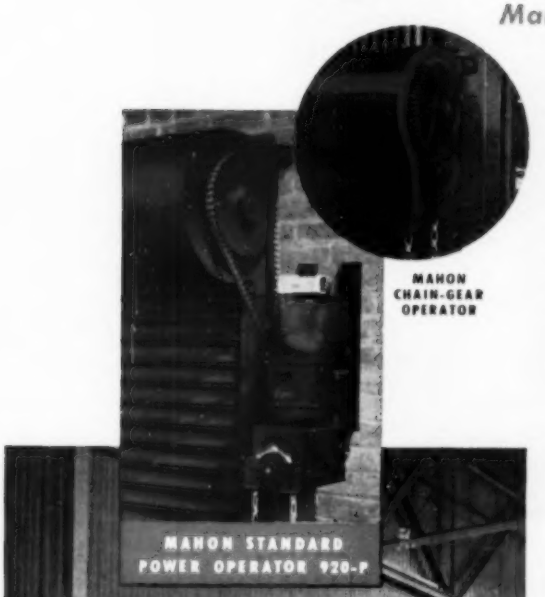

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An empty space, the best insulator against heat flow by Conduction, does not prevent heat flow by Radiation and Convection. Of all heat transferred through structural spaces, about 50% to 80% is by Radiation; all but about 7% of the rest is Convection. The surfaces of multiple accordion aluminum sheets have a reflectivity for heat rays of 97%; absorptivity and emissivity of only 3%. The aluminum and fiber layers retard Convection. Conduction is slight through the preponderant low density air spaces.

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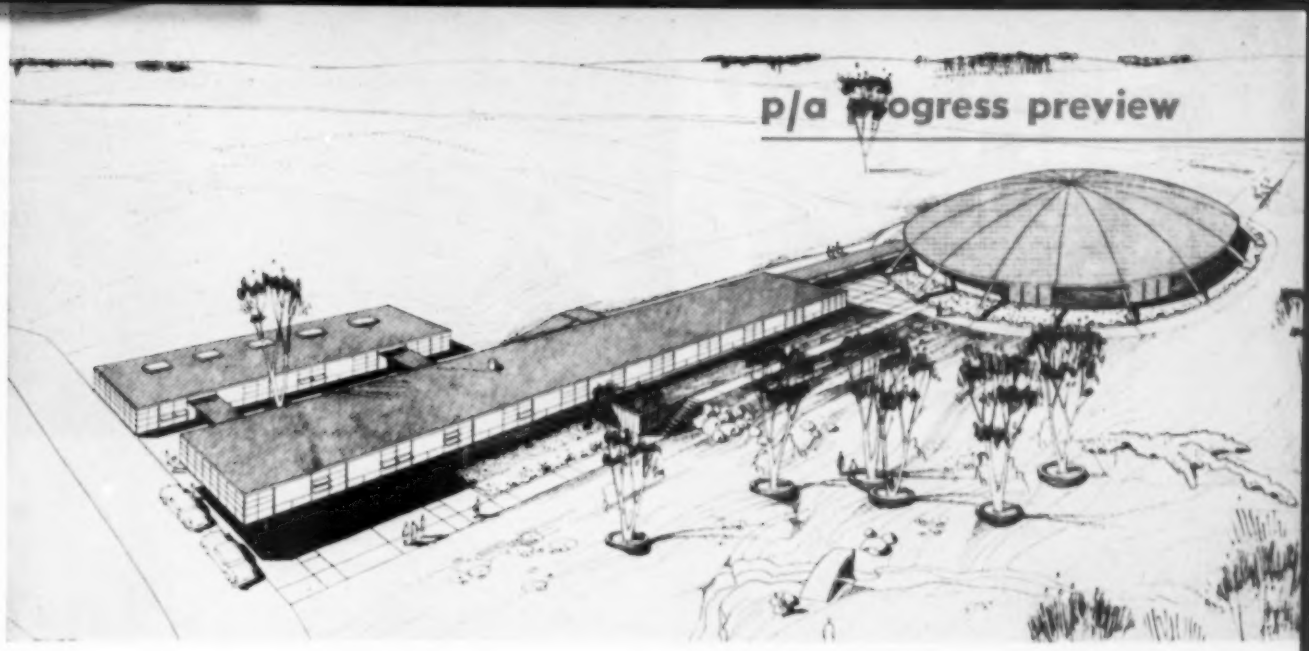


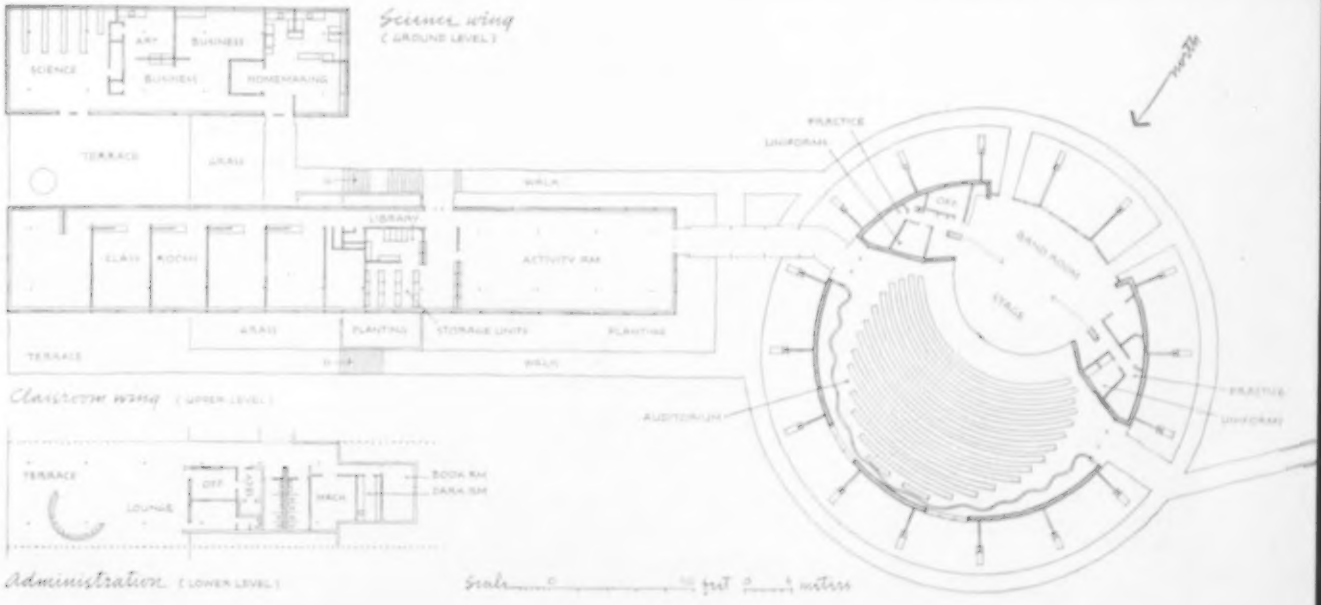
high school for a consolidated school district

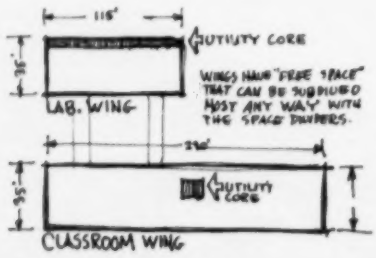
Flexibility of plan and structure, anticipating future expansion and probable program revisions, was the first consideration of Caudill, Rowlett, Scott & Associates, architects-engineers of Bryan, Texas, when they designed the senior high school (*shown here* and *overpage*) for the consolidated school district of College Station, Texas. As usual in school construction, minimum cost was a strong governing factor, and the architects, with assistance of a sympathetic superintendent, Les Richardson, found various ways to limit expenditures.

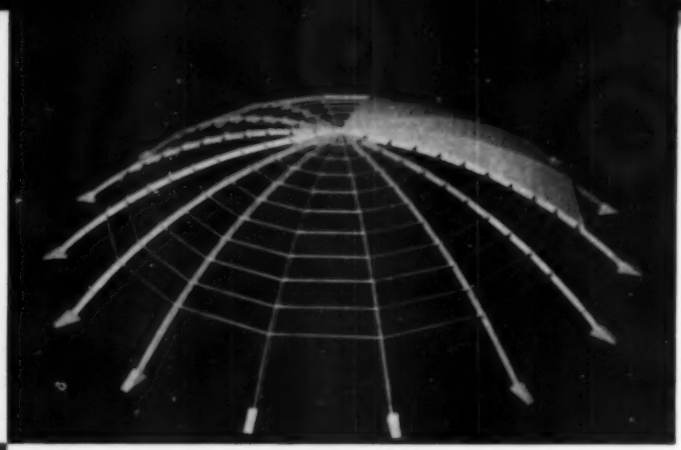
Principal elements of the building are the round assembly/music dome and the long classroom wing, with adjacent one-story science wing. Advantage was taken of the sloping site to provide an entrance terrace at street level (*left in rendering above*) and ready access to administrative offices, below the row of classrooms (*plan below*). Interior doors were omitted throughout, after the architects observed in existing schools that doors are left open during class periods. This permitted a relatively modest saving, but promotes flexibility without (the architects believe) causing a major sound problem.

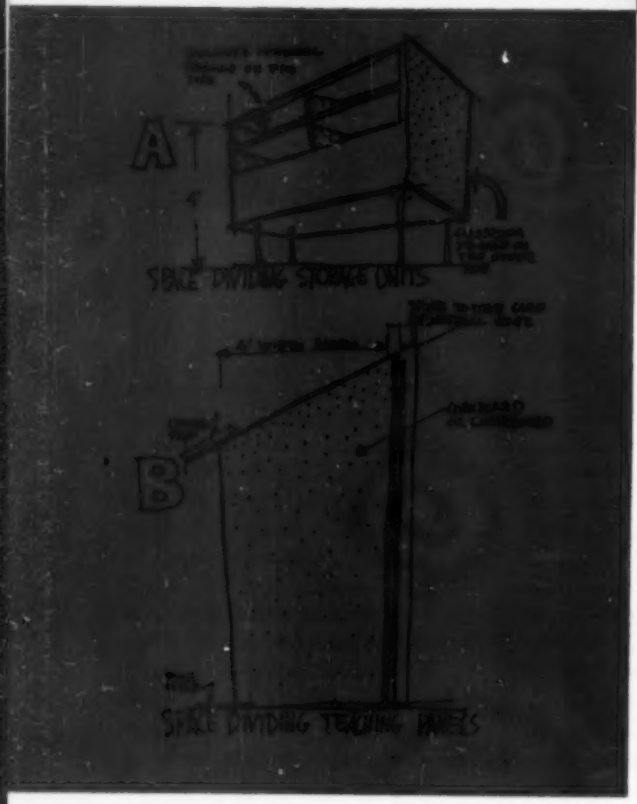
After a series of studies of the auditorium/ music unit of the high school, it developed that the round element required minimum-height walls, uniform structural units, and simpler foundation scheme. Use of inexpensive baffles and screens insures good acoustics—and the plan is readily adaptable to a variety of uses, with room for audiences of 600 to 900.

The classroom wing is described as "a loft with space dividers" (*see sketches overpage*). The dividers are either movable storage units or teaching panels.

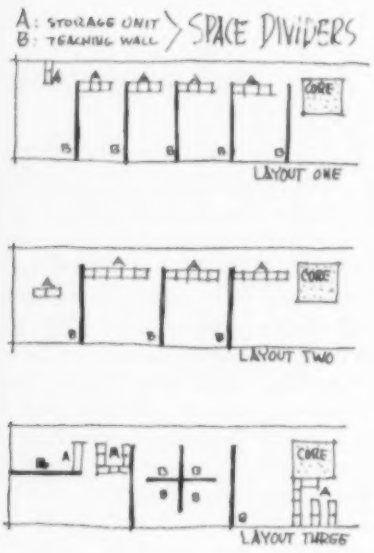




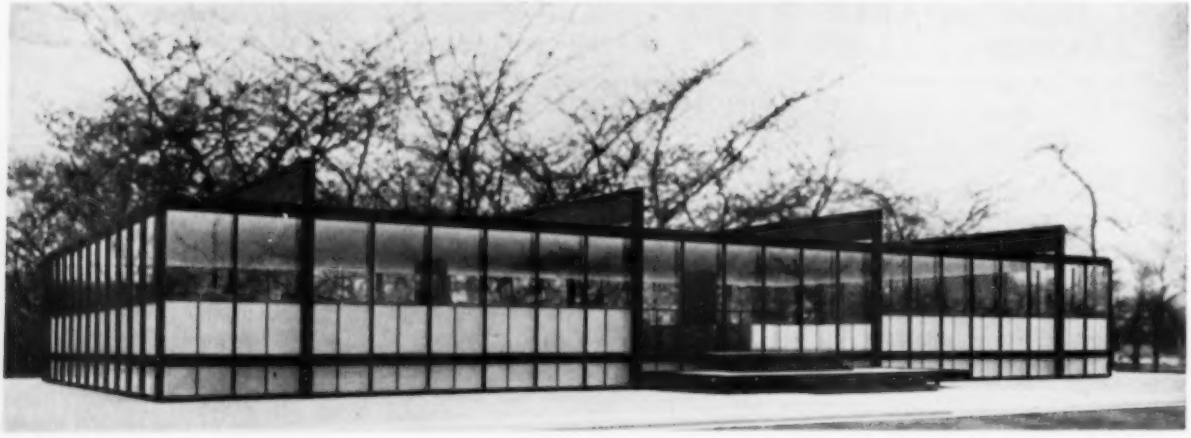




The weblike structure of the dome was developed in a model (above). *Concentration of utilities provides maximum "free space" in teaching wings* (above left). *Storage and panel units* (left) *used as room dividers may be placed in many ways* (below).



architecture, city planning, and industrial design *will be taught in a glass and welded-steel pavilion* (below) *designed by Mies van der Rohe for construction during the coming year at Illinois Institute of Technology. Two large drafting rooms will flank a raised central hall, beneath which a basement will accommodate lecture rooms and services.* Model photo: Hedrich-Blessing



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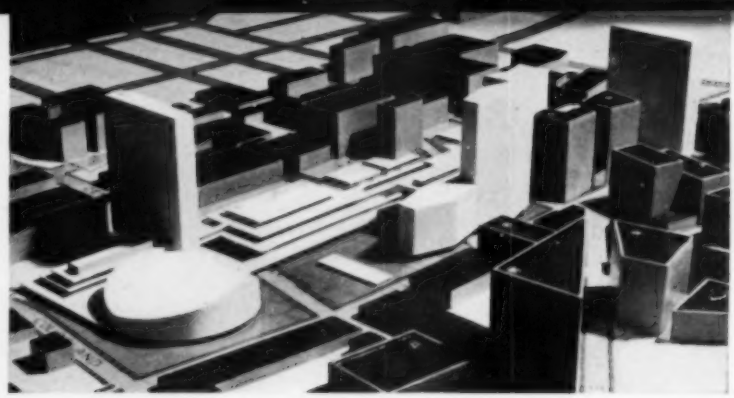
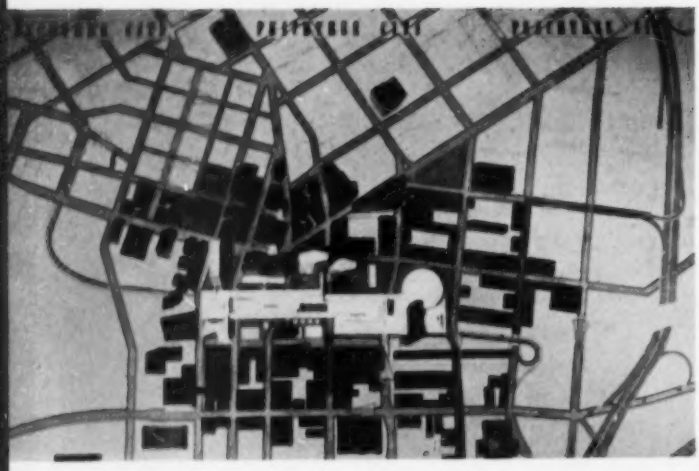
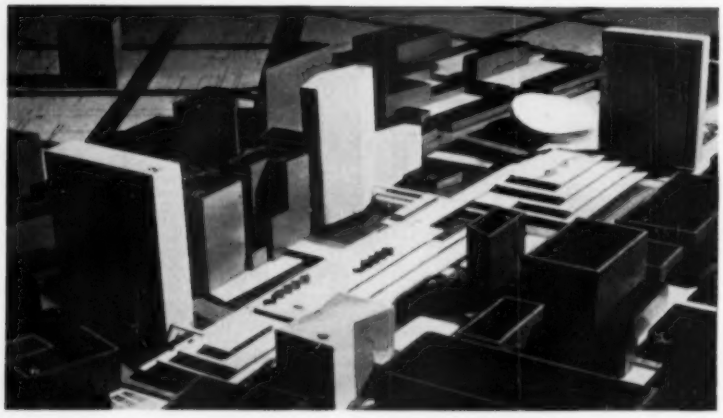




urban redevelopment—South



Businessmen and downtown property owners of Atlanta, Georgia, are looking with approval on projects for redevelopment of the city's "golden heart"—the century-old downtown railroad yards in the great gulch cutting through the business section—as counteraction against decentralization of future growth. Some 300 civic leaders led by Mayor Hartsfield met in June at Citizens & Southern National Bank as guests of Mills B. Lane, Jr., president, to inspect a large model (*above*) of "Peachtree City" project, designed by Toombs & Company, Architects, with encouragement of Central Atlanta Improvement Association. A multimillion-dollar commercial center for the metropolitan area is envisioned on a 22-acre site—office buildings and shops, a hotel, a convention hall, a department store, with necessary circulation, green areas, and amenities—when legal, zoning, engineering, and financial requirements can be solved. Explanation of the model and development project by Henry Toombs and Joseph Amisano, representing the architects, won general approval of the business leaders, who realize the need for expert planning to revitalize the city core. "Redevelopment . . . is a necessity," says Lane, firm proponent of downtown renovation.

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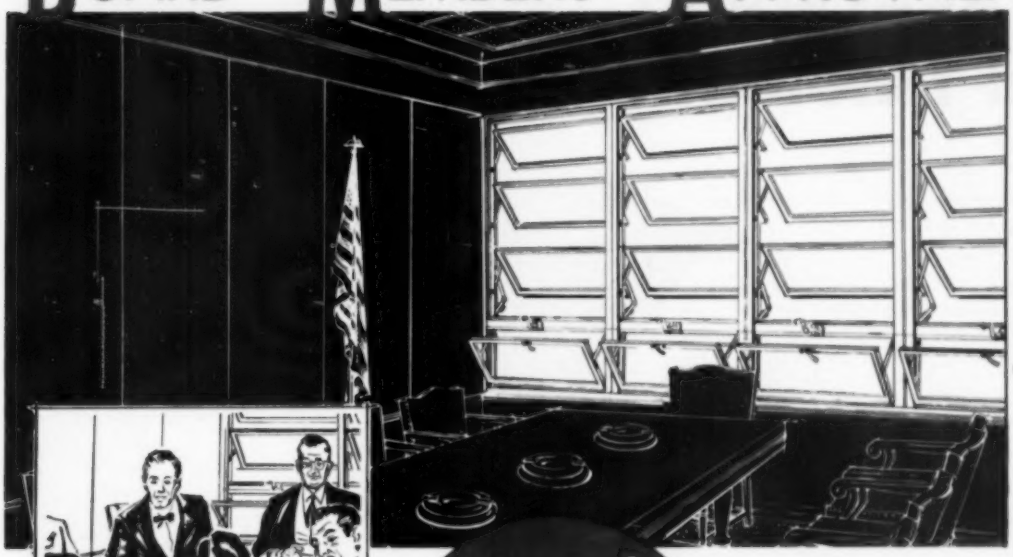

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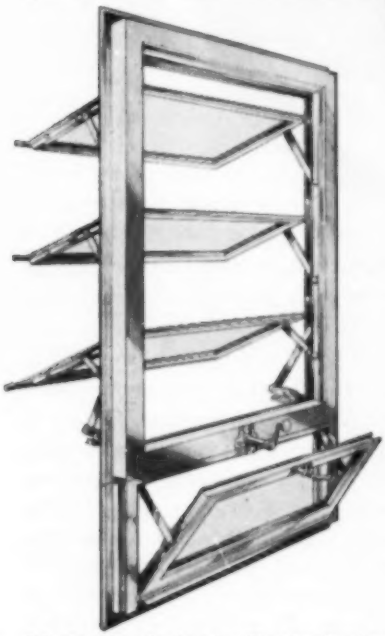

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criticism of stereo-structures parried by Candela

Dear Editor: I wanted to congratulate all of you on the June 1954 P/A, but you have given me such outstanding participation in it that the praise would sound selfish. However, I do feel free in acknowledging your kindness in publishing my paper in such a wonderful and undeserved manner. I am especially obliged to Thomas Creighton for his charming comments on the editorial page and, in general, to the critics for their objective opinions. By the way, why not have an architect's views?

Nonetheless, I cannot let some of the criticism pass without some countercomments of my own. I particularly regreat the necessity of answering several of M. G. Salvadori's points. It seems very impolite on my part after his exceedingly benevolent comments on my structures—yet I have no other choice but to decline his gracious help which, I believe, only adds confusion to my perhaps already obscure expressions.

My definition of *active* and *passive* structures is only of secondary importance. But, if I agree that a beam is a most active structure (which I have never denied), the two inclined members of *Figure 1* also form an active structure that transmits an isolated force, breaking it in two, to separate points of support. They form, indeed, the most appropriate plane, active structure for isolated loads. What is really misleading and immaterial is Professor Salvadori's addition of a hinge connecting both struts in *Figure 1*.

Stereo-structures can sound pedantic in English which already has the more suitable word, *space-frames;* however, the article was originally written in Spanish in which the word becomes "Estructuras espaciales" or "Estructuras tridimensionales," which I don't like. *Stereo-structures* was first used by the Spanish Architect Felix Cardellac who wrote a very commendable book (about 1900) entitled *Filosofia de las Estructuras.* The main merit of this book resides in its intuitive approach to the structural problem in an epoch when nothing but the strictly mathematical interpretation was considered worthwhile.

With respect to my assumed opposition to mathematical engineers, I must say that since I have not been previously acquainted with any engineer interested in shells, I have probably lost their instructive talks and verbal explanations and, therefore, I was referring only to the available literature published prior to 1948 which is (taken as a whole) deliberately obscure and confusing. My batteries were not directed against *all* mathematical engineers (I am very much indebted to many of them, and especially to Aimond) but specifically against the Germans whose analysis of long cylindrical shells is—if in good faith—absolutely erroneous. This cunningly laid mathematical barrier has effectively prevented me during long years from seriously considering the possibility of building shells. Their apparently very scientific mathematical developments are generally based on false pretenses which have nothing to do with the real behavior of the actual structures. If these stand up, it is not *because* of but *in spite* of being designed by such methods and because of some properties of the materials which were not considered in elastic calculations.

I agree with Salvadori's observation about the present impossibility of considering the building of any form that has not previously been mathematically analyzed. Indeed, this observation only reinforces my point on the forceful abandonment of the fittest structural forms, on the lack of freedom in the inquiry for appropriate shapes. I would like to know the mathematical expression defining the form of the vaults filling the space between groins in a Gothic cathedral—but only for curiosity's sake since, of course, no Gothic cathedral could be built today. The most lenient Building Department would consider it quite unsafe.

My paper was not intended to be a full treatise on shell structures and, therefore, there are many points which I did not even try to touch on; I do not remember having said that the free longitudinal edges of a cylindrical shell do not deflect downward because they deflect indeed, as

(Continued on page 16)

need to be heard

Dear Editor: I have just read the article concerning Reynolds of Public Buildings Administration (WASHINGTON PERSPECTIVE, June 1954 P/A) and feel strongly that your statements are right—and that they need to be heard.

For one, I hope this piece has wide dissemination in Washington, especially with the member(s) of Congress who may act to change the present status.

HAROLD R. SLEEPER
New York, N.Y.

valiant champion

Dear Editor: I think the June NEWSLETTER does not give adequate credit to Bert Reynolds. He has fought vigorously, intelligently, and imaginatively for better design, lower cost, and more appealing structures. He has supported efforts within and without the government to modernize engineering practices so as to bring design requirements more in line with reality. For instance, he has tried to modify the safety factor in wall design where the weight of the wall is fixed and to allow more flexibility in floor design where loads may vary greatly.

Mr. Reynolds has been trying to get money from Congress which would permit him to spend some funds for research, improving methods and designs and cutting costs. He was not as successful as Commissioner MacDonald, but, considering the obstacles he has to fight, it seems to me he has achieved noteworthy results.

I quite agree with Gutheim that he has been one of the great career administra-

(Continued on page 152)

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p/a views

(Continued from page 15)

indicated by intuition and experience. My indication of the convenience of providing longitudinal edge beams was probably left out in the editing and I did not consider its further insertion very important in such a general treatment.

I am extremely disappointed that such an experienced person as Professor Salvadori has been unable to understand my explanation on the legitimacy of considering only membrane stresses in doubly-curved shells, for it means that not many other people will understand it and that I must admit my failure as a teacher. By the way, I would like to correct now the omission of Prof. Odone Belluzzi's credit, from whose book, *Scienza della Costruzioni, Volume III*, was borrowed the referred exposition, which I found a very clear and instructive statement of the behavior of doubly-curved shells, and especially appropriate to synclastic surfaces, in spite of Salvadori's opinion. His attempted correction "the maximum *elastic* bending moments developable in the shell are so small, because of its small thickness, that they may often be neglected" is, precisely, what I was trying to point out as the usually admitted and incorrect explanation of the phenomenon found in most texts. (Or, perhaps this explanation is not incorrect after all! I don't know, for I confess that I have never been able to understand its meaning.)

Of course, I believe that *the application of the Theory of Elasticity to structural problems* is a pseudo-scientific vogue (and a very persistent one) and the same doubts about its suitability seem to be imparted (to judge from their writings) by Saliger, Maillart, Van der Broek, Kist, Freudenthal, Johansen, and many other conscientious engineers who cannot be suspected of superficiality. I am even daring to presume that it can also be the inner conviction of Paul Weidlinger, even if he doesn't like to admit the point. I believe that I can be allowed this presumption of Weidlinger's inner feelings, since he permits himself an equally unsupported conjecture on my misunderstanding of the play of membrane stresses.

I have nothing against the Theory of Elasticity as such, since it is only a logical or mathematical reasoning starting from certain simplified hypotheses, but I strongly object to its indiscriminate application to structural analysis and especially as related to reinforced concrete design since the behavior of this material is in total disagreement with elastic assumptions.

The trouble is, if we abandon the use of elastic methods, no other procedures seem to be available in substitution. But this is only the fault of people who, clinging blindly to obsolete principles, have hindered the development of new methods of investigation. In spite of the fact that the first voices of warning sounded as long as forty years ago, it is only very recently that the clearing of new paths of thought as related to structural analysis has begun to be considered seriously.

FELIX CANDELA
Mexico, D.F., Mexico

(Continued on page 19)

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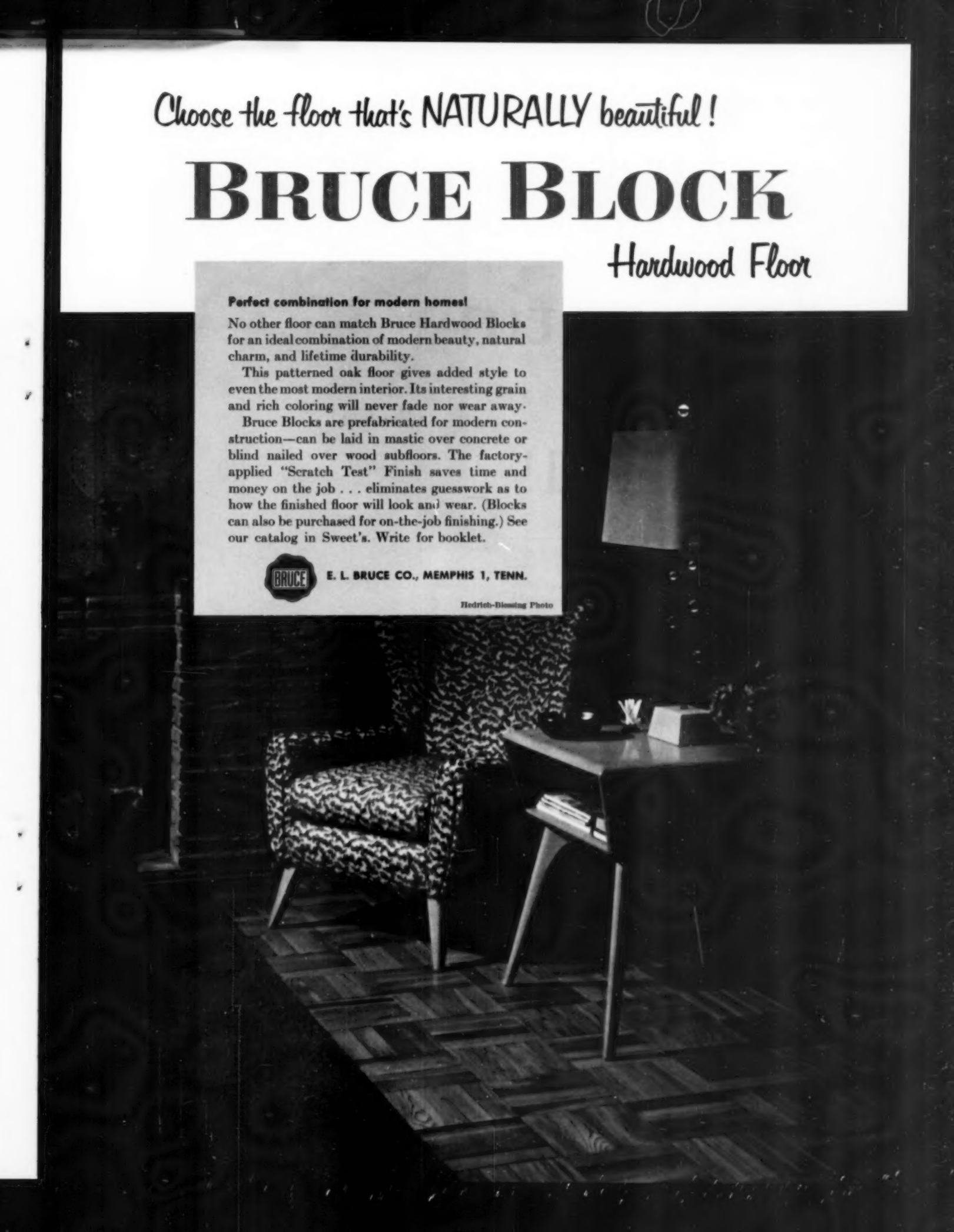

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two engineers comment

Dear Editor: I am not one to spend too much time writing letters and criticisms of articles written by those who have a better talent for the use of the written word. But the article written by Felix Candela has too many half-truths which may do too much damage to easily impressionable minds; and, therefore, the haze should be cleared up.

1. It is erroneous to simplify the action of a beam into tension and compression and forget shear, or diagonal tension and compression, which in a simplified form is a continuity of triangles. This applies to trusses and beams, regardless of shape, form, or material.

2. It is not true that in reinforced concrete the tensile strength of the concrete is not used and that approximately two thirds of the beam is wasted and acts as dead load only. This is an oversimplification of the workings of a structure. With the minor exception of pure bending, beams acted upon by loads must resist diagonal tension and compression to transfer the loads to the supports. In reinforced concrete this could not be accomplished without the so-called "wasted two thirds," which takes its share of tension (sometimes with the aid and often without the aid of stirrups or diagonal rods) and all the diagonal compression, a swell as serving as a bonding agent.

3. It is not true that the triangle is indeformable, as long as elastic or plastic materials are used (are there any other types). A structure thus braced will deform — essentially the same way as a beam or truss. Members in tension will elongate, members in compression will shorten, resulting in a total deflection, and in high narrow structures this deflection can be critical.

4. Give long-span shells a double curvature and you have a funicular structure. But apply a partial loading such as snow on that long span and you have to contend with bending. Whether you will have tension over a section or unequal compression will depend on span, radius or curvature, shape, proportion, and will require an analysis.

And I might add that our sheet-metal manufacturers are well aware of the inherent quality of double curvature as exemplified in corrugated arches, pipes, culvert, etc., and big spans too.

5. Concrete floor construction is a much greater field than single-story buildings with concrete roofs. "Funicular" construction would hardly fit in. Space frame construction is continuously being used in floor design, such as flat slabs and their variations.

6. Flat roofs have many advantages in conservation of volume which reflects more in the cost of a structure than the roof itself.

The author's hope that the time will come when the architect will need less

(Continued from page 14)

of science and more of talent is lack of the realization that science is not a faceless tool, nor is talent without the use of science—where science is a requirement —a talent put to proper use. The science I am referring to is not an application of theories and formulas, but a blending of theory and experience into a vision which

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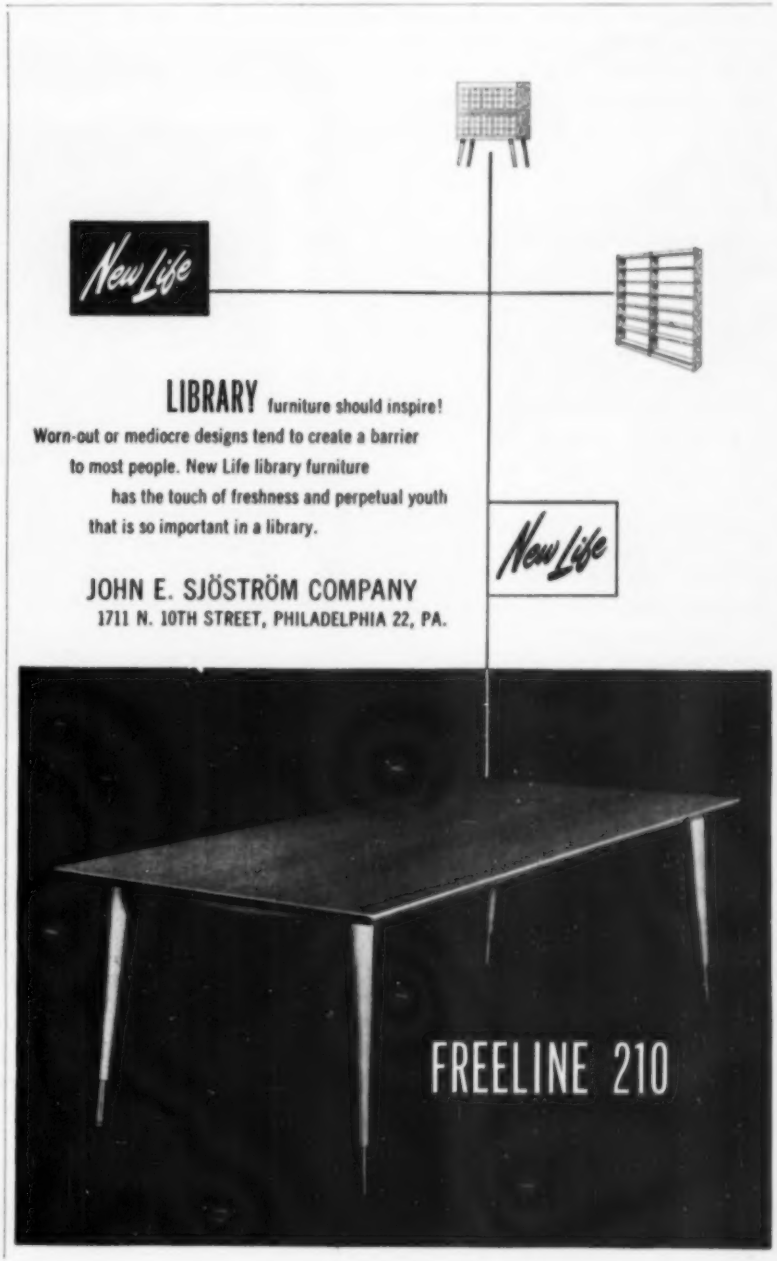
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p/a views

(Continued from page 19)

is vital within a framework of reality.

If the architect wishes to dispense with the engineer, he has some catching-up to do. His talent won't help him. If some should take the Candela article seriously, the Lord help them and their client.

DAVID B. CHESKIN
Chicago, Ill.

o

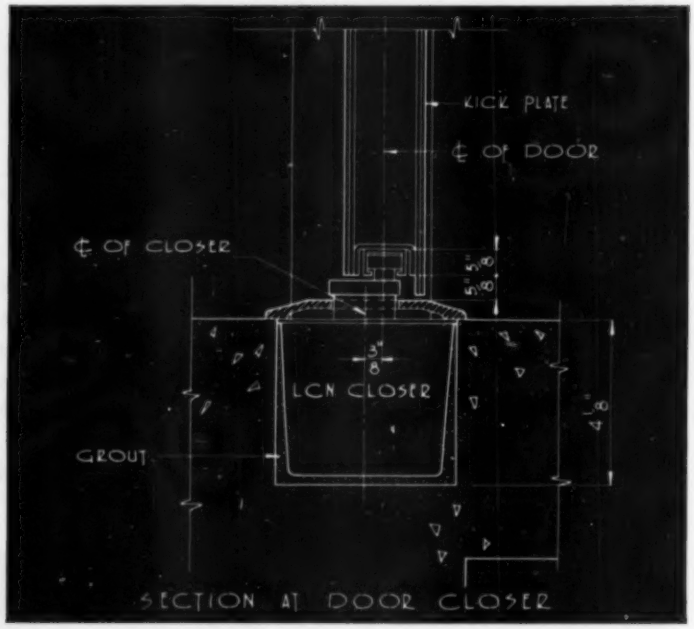
Dear Editor: Felix Candela expresses his unrestrained exuberance in both his beautifully conceived structures and in the verbal descriptions of his personal theories of construction. The latter are not quite so convincing, and this is in no small part due to the difficulty of expressing abstract physical conceptions in words (a problem no less difficult in mathematical terms) meaningful to another person.

It seems to this writer, who is both an architect *and* a structural engineer, that the intuitive choice of forms best suited to enclosing space is a talent that MUST be nourished and developed by every architect and/or engineer who takes his work seriously. But, the insight necessary to check the flow of stresses for any specific structural condition need *not* be possessed by the same person who makes the initial conception (although that situation would be ideal), providing the two minds work together: modifying the initial design as may be necessary, improving and perhaps emphasizing the lightness and delicacy of some portions, while strengthening other areas.

Perhaps the greatest good can flow from Candela's missionary work in lessening our rectilinear inhibitions, and encouraging a healthy exuberance in structural conceptions. There is no doubt that a large stream of enthusiastic young architects is flowing into that now less-inhibited profession, but I fear that no similar phenomenon is occurring in the realm of structural engineering. Quite the reverse, for the bright young iconoclasts with mathematical bent are headed toward aeroballistics, nuclear physics, and electronic statistics. Because of the boring and uninspired work of all but a fraction of the structural offices in this country, there are no highly publicized frontiers in this field (and we, all of us, are victims of the ever-present mass media). Let us hope that enough exceptionally wonderful creations—like those of Candela, Saarinen, Fuller, and others—will break the vicious circle.

There is no question that design is becoming more and more dependent upon carefully trained individuals who are masters of their particular art. As technology becomes more complex, greater emphasis will fall upon methods of teaching, as Bob Kennedy and Carl Feiss have so ably stated. The design professions are going to have to contribute more and more skill to the effective organization of their supporting educational institutions.

STANLEY JAMES GOLDSTEIN
South Orange, N.J.



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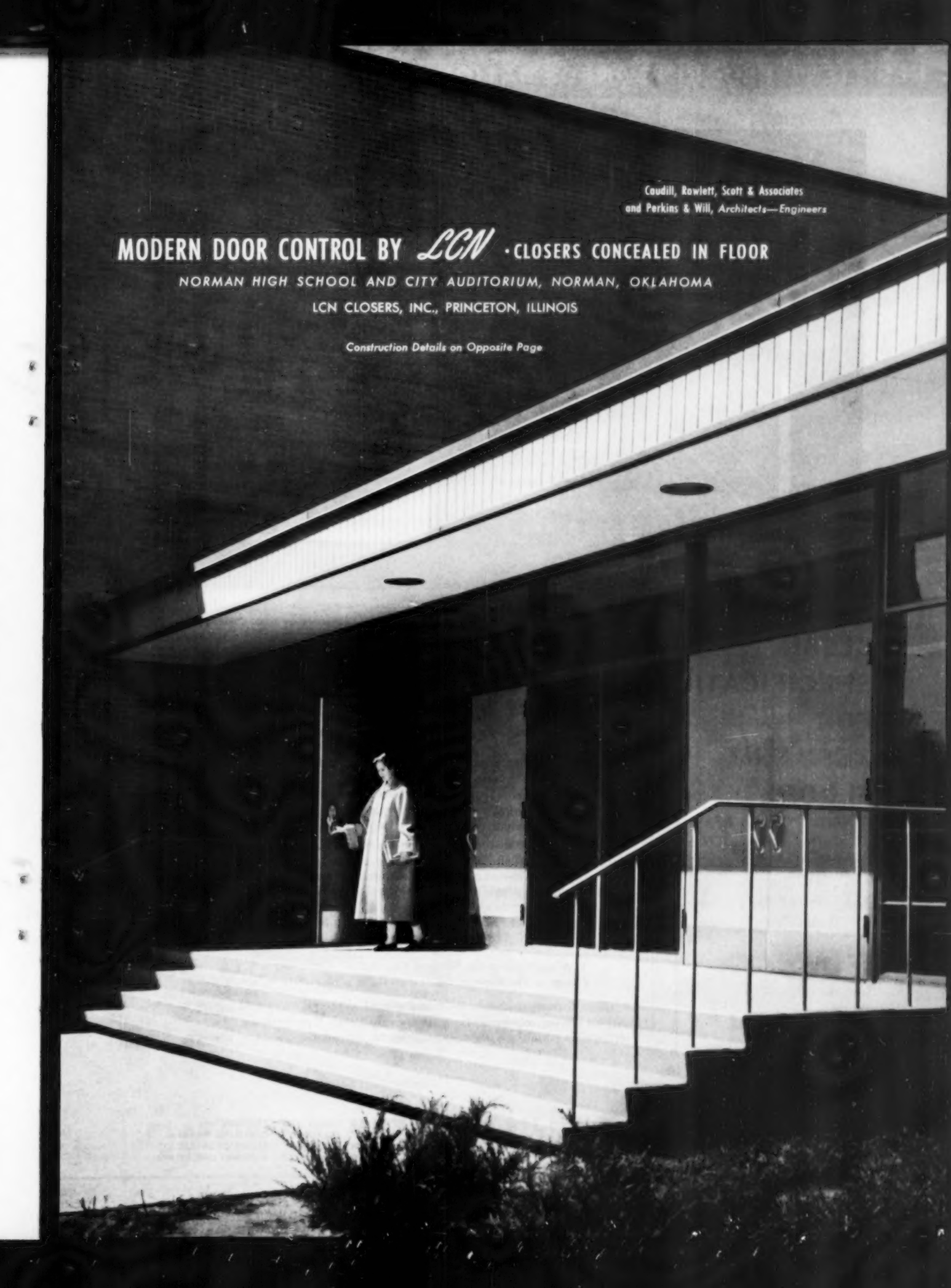

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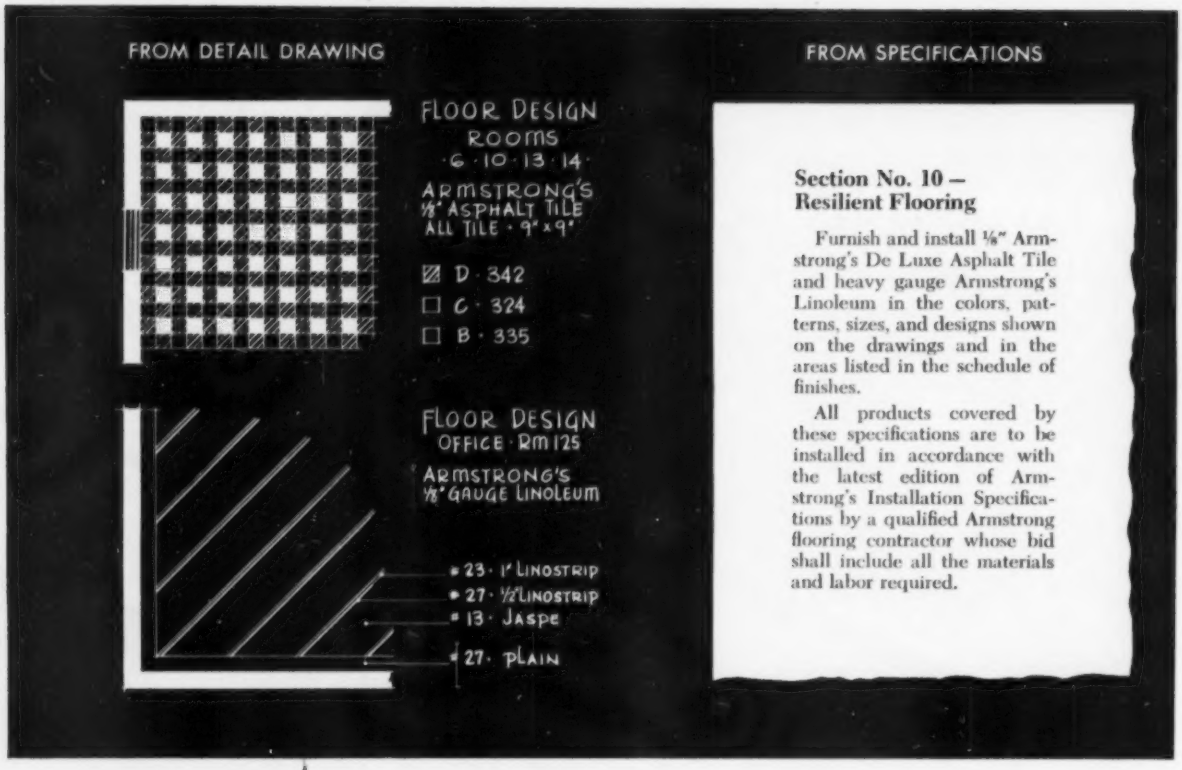
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Simple detail drawings of the floor design with the manufacturer's color numbers indicated eliminate the need for a full description of the materials to be used. From the drawings and general specifications, the bidding contractor can quickly see the work involved in the flooring job.

CLEAR SPECIFICATIONS FOR RESILIENT FLOORS

The complexities of resilient flooring installation, labor, and material costs are generally of no great concern to the architect. However, it is important that he be able to classify the materials and work to be done so that all bidding contractors will base their estimates on the same standards. In many instances, the misunderstandings that occasionally arise between the architect and the flooring contractor stem from the specification writer's incomplete knowledge and understanding of the details which affect the contractor's labor and material costs.

Because of the wide scope of the specification writer's work, it is impractical for him to become familiar with all such details. However, if he has a working knowledge of variations in cost of resilient flooring materials, labor, and subfloor preparation, he should have little trouble in writing clear and concise specifications.

Price Variations in Flooring Materials

Among the factors which govern resilient flooring material prices are:

Type and Style of the Resilient Flooring	Color and Graining
Gauge or Thickness of the Material	Standard or Special Sizes

Resilient flooring materials are manufactured in several types and gauges to meet various service requirements. In many cases, each type is made in a number of stylings to permit greater opportunities in interior design. For example, Arm-

strong's Linoleum is made in nine stylings, Armstrong's Corlon plastic in four, and Armstrong's Asphalt Tile in two grainings.

One of the items most often omitted from resilient flooring specifications is the naming of the particular flooring style and color group. This part of the specification is a very important factor in figuring costs. For example, Armstrong's Linoleum falls into three separate price groupings according to style and color. Plain Linoleum in regular colors, Jaspé, Raybelle, Marbelle, and Royelle are all in one price range, while Embossed Inlaid, Spatter, Straight Line Inlaid, and Craftline Inlaid are priced slightly higher. Plain Linoleum in special colors is in the highest linoleum price grouping.

Asphalt tile is another example. It falls into two price groupings – De Luxe or swirl grain, and a lower priced Standard, or straight grain styling. Prices within these two groups vary according to color. The "A" or darkest colors are the lowest in cost and grade up in price to the "D" or lightest colors.

Armstrong's Rubber Tile, Cork Tile, Custom Corlon Tile, Linotile and Excelon Tile vary in product cost, but there is no price differential within the color line of each.

One of the clearest ways to specify resilient flooring materials is to indicate the manufacturer's name and color number. When this is not possible, or if a floor design cannot be selected in advance, it is important that a clear understanding be given of the amount of each material to be used. For example,

"Asphalt tile design to be composed of color groups: B–25%, C–50%, D–25%, ... or,	". . . Linoleum in rooms 110 and 112 to be ⅛" jaspé with 12" borders of ⅛" plain regular colors."

Such a specification will give each flooring contractor a standard basis for bidding.

Variations in Contractor's Installation Costs

The labor involved in laying a particular floor design is another big factor in figuring price. If the architect fails to give a clear idea of the complexity of the design, the contractor may base his bid on fewer installation man hours and underbid the job. In such cases, there is sure to be an expenditure of time and words–if not money–before the misunderstanding is settled.

To prevent such misunderstandings, it is recommended that the architect show detail drawings of at least one typical floor design when they are too complex for adequate description in the specifications. An example of such a drawing is shown above. Simplified specifications of materials, colors, gauges, and sizes shown on, or supplied with, the drawings will also be helpful to the contractor in accurately understanding and figuring the labor and materials required for the installation. It should be noted that special tile sizes add to the over-all cost of the flooring and should be used only when they are required to complete a particular floor design.

Underlayment Requirements in Remodeling Jobs

On remodeling work it is always advisable to list all necessary repairs in the specifications, such as replacing badly worn boards, sanding floors, filling cracks in concrete, etc. Never use a blanket specification such as, ". . . the old subfloor shall be repaired to provide a suitable base for resilient flooring." Such specifications invariably invite the least expensive method of subfloor preparation, which is seldom in the best interest of the client. From the contractor's point of view, competition leaves him no choice but to base his bid on the least expensive method of subfloor repair. Tight subfloor preparation specifications put all contractors on an equal bidding basis.

When hardboard or plywood underlayments are being specified, the architect should indicate the type, thickness, and grade recommended by the manufacturer of the resilient flooring being specified.

It is not necessary for the architect to specify how the flooring contractor should install the flooring materials. It is far safer and more exact to specify that the materials be "installed in accordance with the manufacturer's latest printed instructions."

Armstrong Cork Company makes all types of resilient floors for all types of interiors. Almost any flooring problem can be met with one or more of the floors in the Armstrong Line. As a result, we have no special bias toward any one type and can offer architects impartial recommendations on any flooring problem. Our main interest is to aid you in making a sound flooring selection.

Armstrong's sales representatives throughout the country will be glad to consult with architects and make specific recommendations for individual jobs. Your Armstrong representative has a wide variety of experience and training in resilient flooring and can also call upon Armstrong's Research and Development Center for help with special problems.

For helpful information on any flooring question, just call your nearest Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, Lancaster, Pennsylvania.

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CUSTOM CORLON® TILE
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RESILIENT TILES
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announcing

REINHOLD PUBLISHING CORPORATION'S

PROGRESSIVE ARCHITECTURE announces the second annual Design Awards Program, with Awards and Citations to go to Architects and their Clients for projects in the Design Stage. The tremendous success of last year's Program—in quality and quantity of entries, as well as publicity for the Winners—makes it important to repeat this public relations event. Therefore, again . . .

Awards will be given for best projects in various building categories, planned for construction in the United States. A distinguished JURY will make the selections and plaques will be presented to the Winners at an Announcement Dinner in January, in the home town of the recipient of the . . .

First Design Award, offered the one best project submitted.

Citations also may be given, at the discretion of the JURY.

Why . . . PROGRESSIVE ARCHITECTURE believes that many fine design ideas need recognition IN THE DESIGN STAGE rather than after completion of the building. The Editors believe that this will encourage not only designers and owners of buildings so honored, but also others working on similar commissions.

When . . . Submissions must be made not later than September 7, 1954.

What . . . No application blanks are necessary. Submissions should include basic plans (preliminaries or prints of working drawings), pertinent sections, a site plan, and enough (8″ x 10″) photographs or photostats of renderings or models (no originals, please) to indicate the final design. To be eligible, a project must represent an actual commission. The Client and proposed location must be stated.

Jury . . . Edgardo Contini, Charles M. Goodman, Walter Gropius, Morris Ketchum, and Paul Schweikher.

SECOND P/A DESIGN AWARDS PROGRAM

for projects not yet built

Judgment . . . Will take place in New York the weekend of September 17, 1954.

Awards . . . Will be given to best designs in eight categories—COMMERCE, EDUCATION, HEALTH, INDUSTRY, PUBLIC USE, RECREATION, RELIGION, and RESIDENTIAL DESIGN—on bases of site use, choice of structural system and materials, solution of client's program, and over-all design excellence. The JURY will assign projects to the various categories and reserves the right to withhold an AWARD in any category.

Announcement . . . Winners of Awards and Citations will be announced at a Dinner to be given in the home town of the recipient of the First Design Award, unless impracticable. At this Dinner, the P/A Annual Business Forecast for 1955 will be made and the results of the P/A Annual Design Survey and the P/A Annual Engineering Survey will be announced.

Publication . . . Winning projects will be presented in JANUARY 1955 P/A and the winner of the First Design Award will be featured. Arrangements also will be made by REINHOLD PUBLISHING CORPORATION to have the Winning Projects published in other magazines and in newspapers, particularly the media in the home towns of the Winners.

SEND IN YOUR PROJECT BEFORE SEPTEMBER 7, 1954 . . . Simply send basic plans, sections, site plan, photographs or photostats of renderings or models of your best project (or projects) now on the boards, with a brief statement of the client's program, client's name and the location of the proposed building, and a brief explanation of your solution. Address to:

Awards Editor, PROGRESSIVE ARCHITECTURE
430 Park Avenue, New York 22, N. Y.

(Note our new address)

We will carefully guard and return all material, photographs, etc., submitted.

Floor of Teutonia Bank in Milwaukee, Wisconsin, is typical of an installation where vinyl tile is used because of its remarkable wearing qualities.

Pattern for Beauty

Plus Durability . . .

VINYL

TILE

FLOORING

What is "vinyl" tile? This new floor covering is made from synthetic resin, fillers, stabilizers and plasticizers. The resin and plasticizers are the binders and the most important ingredients — they impart durability, abrasion resistance, grease and stain resistance, flexibility, heat and light stability.

How can you use vinyl tile? This tile is your answer to questions of durability and rich, colorful appearance in flooring. Vinyl tile comes in a wide array of colors —light to dark; soft, warm pastels; unusual marbleized effects. You'll find it ideal wherever wear's a problem. It also keeps its gloss; requires little maintenance and can be used over practically any kind of dry, smooth subfloor. These advantages make vinyl tile the fastest growing floor covering. Available in a wide price range.

Monsanto's role: This new development in flooring is made possible by Monsanto Opalon* vinyl resins and Santicizer* plasticizers.

For more information on the companies manufacturing vinyl tile, get in touch with the nearest Monsanto sales office or write to Organic Chemicals Division, MONSANTO CHEMICAL COMPANY, Box 478, St. Louis 1, Mo.

Reg. U.S. Pat. Off.

MONSANTO
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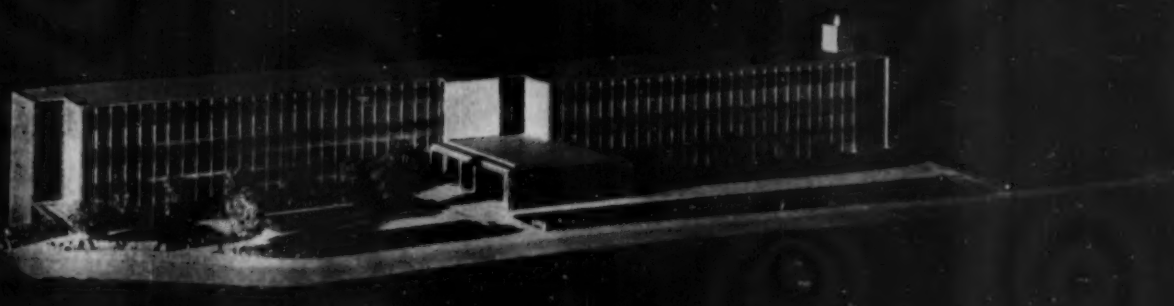
SERVING INDUSTRY . . . WHICH SERVES MANKIND

Carnegie Tech
Men's Dormitory
adopts Alcoa Aluminum
for wall facing . . .
to obtain
maximum design flexibility,
integration and beauty



Pittsburgh architects Mitchell & Ritchey adopted Alcoa Aluminum for the wall system to obtain maximum design flexibility in planning the new men's dormitory at Carnegie Institute of Technology.

Working to an economical budget, Mitchell & Ritchey combined the advantages of the lightweight aluminum wall facing and modular construction. Results: economies in erection time, in construction costs and in maintenance.

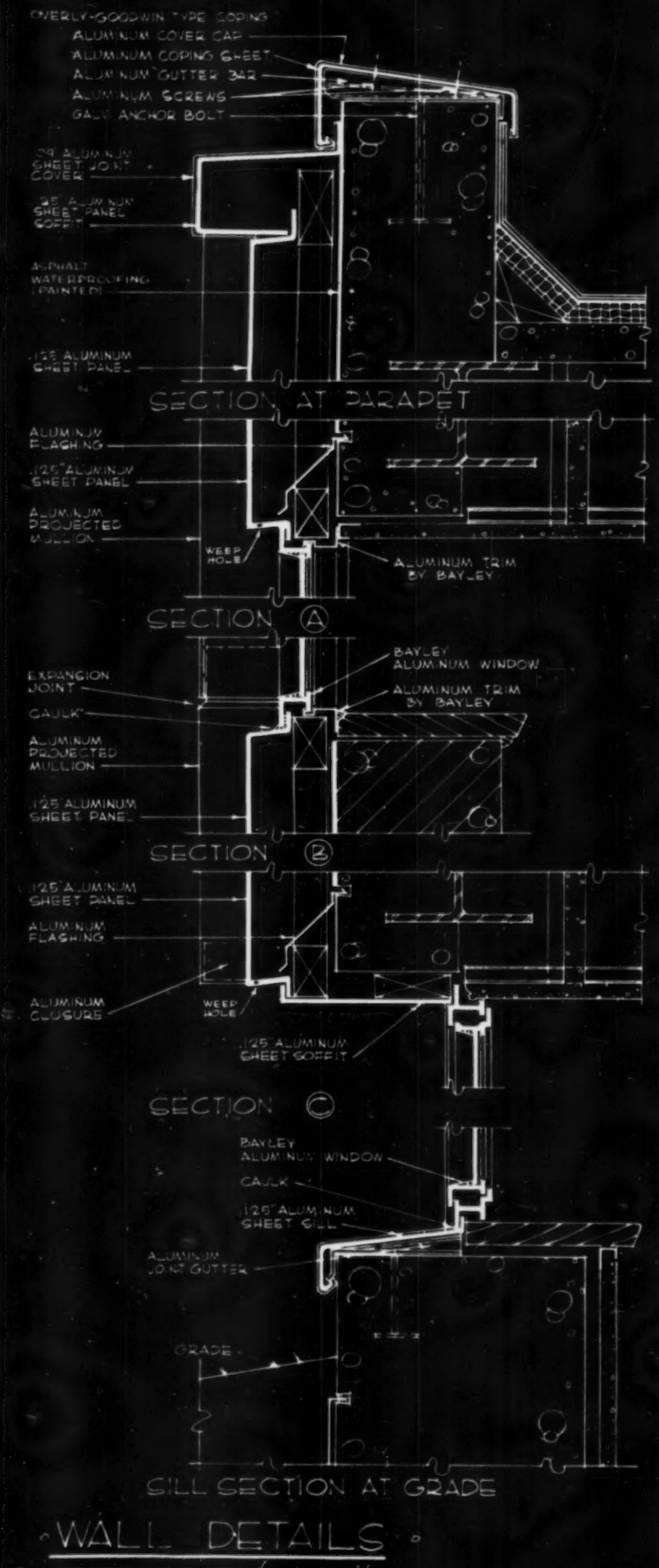
Details shown are a report on this new application of Alcoa Aluminum in wall facing systems. Complete details will be available in Alcoa's Architectural Achievement series when the building is completed. Meanwhile, for additional information on this and other applications of aluminum in architecture, call your local Alcoa sales office. The number is listed under "Aluminum" in your classified directory. ALUMINUM COMPANY OF AMERICA, 1890-H Alcoa Building, Pittsburgh 19, Pa.

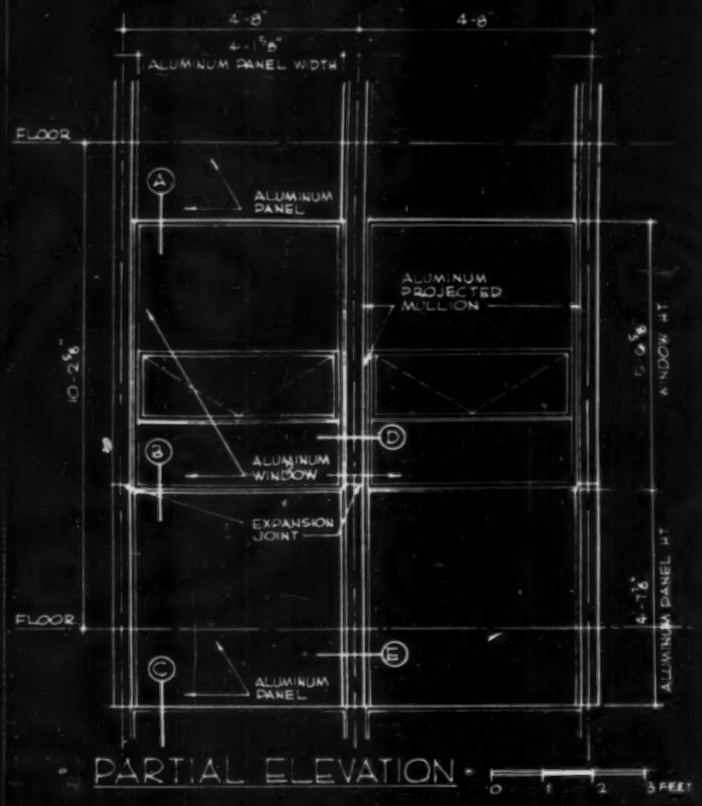
ALCOA ALUMINUM

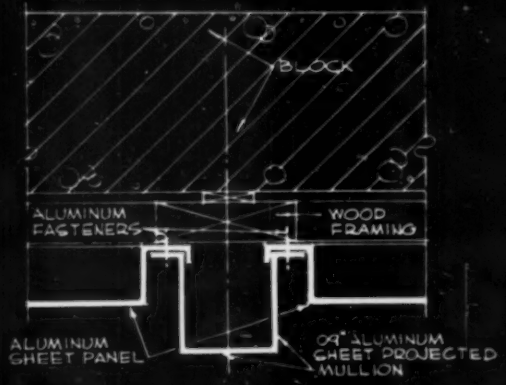
ALUMINUM COMPANY OF AMERICA

CARNEGIE INSTITUTE OF TECHNOLOGY, *owner.*
MITCHELL & RITCHEY, *architects.*
GEO. H. CHILLI, *general contractor.*
OVERLY MANUFACTURING CO., *panels, mullions, copings.*
WM. BAYLEY CO., *windows.*

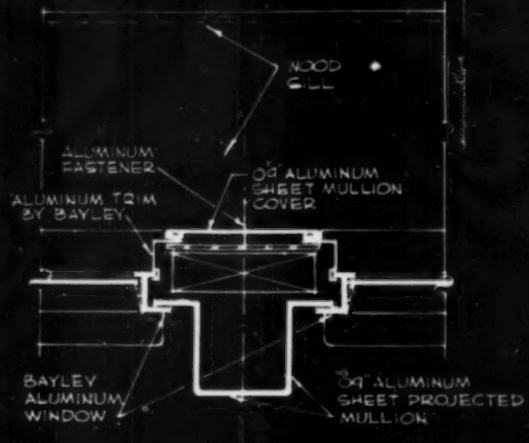
see our catalog in ARCHITECTURAL FILE or write for copy







SECTION (E)



SECTION (D)

Advantages of Alcoa Aluminum for Curtain Wall Systems

• Design and Fabrication Advantages

Design versatility offers an almost unlimited variety of architectural effects through cast, extruded or sheet shapes with wide range of colored and textural finishes.

Thin wall construction can increase rental income by providing more usable square feet of floor area.

Workability permits speedy fabrication with less equipment and lower fabrication investment.

• Construction Advantages

1. Smaller foundations, lighter structural steel framework.
2. Larger and fewer wall facing units.

Ease and speed of wall erection (when anchoring and alignment devices are properly engineered).

1. Reduces labor costs.
2. Normal construction time can be substantially reduced.
   a. Savings in overhead construction costs.
   b. Savings through earlier occupancy and rental return for owners.

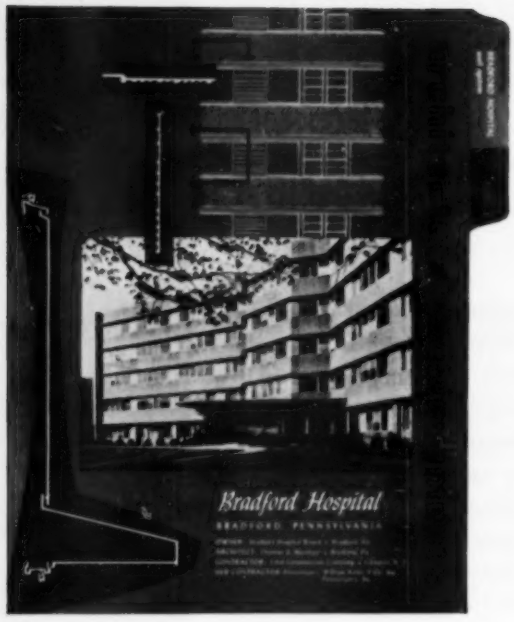
• Maintenance Advantages

Permanent material eliminates painting need.

Fewer joints provide greater weather tightness and reduce wall deterioration.

Special joint designs reduce need for calking.

Cleaning of wall areas is assisted by rainfall.



Details of Hospital Innovation in Alcoa Aluminum Now Available

As an additional service to architects and the building industry, Alcoa has prepared the architectural details of Alcoa Aluminum as used in the wall system of the Bradford Hospital.

Architect Thomas K. Kendryx and the Bradford Hospital Board selected Alcoa Aluminum as the major material for their wall system because of its modern beauty and easy maintenance.

If you have not yet received your copy of Alcoa's Architectural Achievement series which includes complete details of the Bradford installation, write: ALUMINUM COMPANY OF AMERICA, 1890-H Alcoa Building, Pittsburgh 19, Pennsylvania.

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

National magazine advertisements like this one are carrying the Briggs Beautyware story to millions of American readers. Besides selling Briggs fixtures in beautiful color, these eye-catching ads are urging potential customers everywhere to demand the convenience of *two* Briggs bathrooms!

Steer new home prospects your way . . . with two Briggs Beautyware bathrooms!

More often than not, it's the *extras* that make the sale. One important feature that will help sell *your* homes faster is an extra bathroom of Briggs Beautyware. Home buyers know the second bathroom offers a world of convenience no other home improvement can match. They'll be delighted when you tell them how little this modern luxury adds to their monthly mortgage payments.

And, be sure the people who buy your homes are *completely* satisfied. For *both* bathrooms, specify handsome, colorful Briggs Beautyware! You already know of the high quality of every trouble-free Briggs fixture. It doesn't take users long to find how dependable this popular plumbing ware is. Year after year, Briggs Beautyware *keeps* its fresh, new look—because *all* Briggs Beautyware is acid-resistant with non-fading decorator colors!

Increase profits—boost your reputation—sell your homes faster. Always put *two* Briggs Beautyware bathrooms into your specifications!

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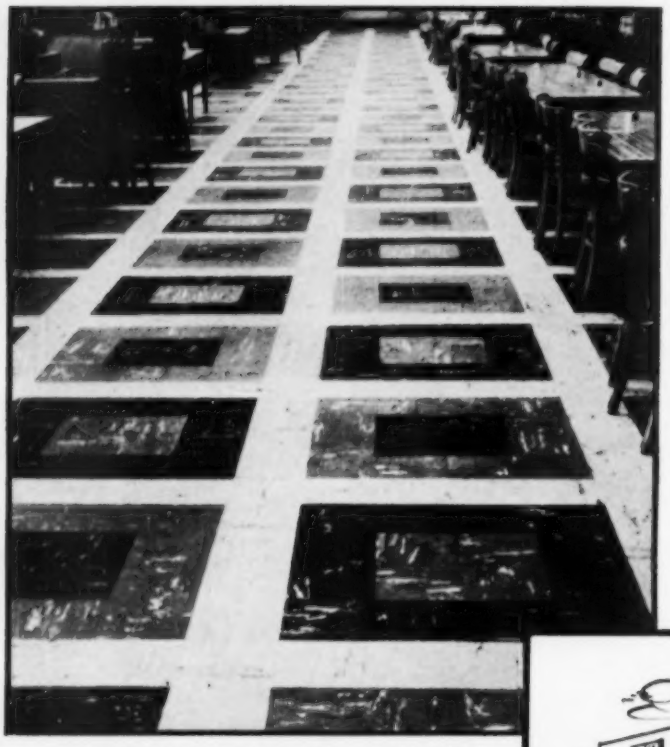
Selected for maximum wear with minimum care...



Johns-Manville TERRAFLEX Vinyl Floor Tile

...in one of the Sperry Gyroscope Co. employee cafeterias

Despite constant exposure to heavy traffic, spilled food, grease, and liquids, the Terraflex floor in the cafeteria of the Sperry Gyroscope Company at Lake Success, L. I. shows no sign of wear—looks as fresh and colorful as the day it was installed.

J-M Terraflex needs less care and gives longer wear than any other type of resilient flooring of equal thickness ... pays for itself through years of low-cost maintenance

After exhaustive tests of many resilient type floors, the Sperry Gyroscope Company selected Johns-Manville Terraflex Vinyl Tile for the floor of one of its employee cafeterias.

J-M Terraflex® is a flooring of time-proved superiority. Made of vinyl and asbestos it is exceptionally tough and resistant to traffic . . . defies grease, oil, strong soaps and mild acids.

Terraflex saves time and dollars through low-cost maintenance. Its nonporous surface requires no hard scrubbing...damp mopping keeps it clean and bright . . . frequent waxing is eliminated. Through years of economical service Terraflex pays for itself.

Available in a large range of striking colors, Terraflex is ideal for restaurants, public areas, schools, hospitals.

Specify J-M Terraflex whenever your plans call for resilient flooring. Its long-wearing beauty and long-time economy provide a maximum of reliable floor service. For complete information write Johns-Manville, Box 158, New York 16, N. Y.

Johns-Manville

JOHNS MANVILLE JM PRODUCTS

Traffic tells the elevators what to do

RAILWAY EXCHANGE BUILDING
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The 17-story RAILWAY EXCHANGE BUILDING is replacing its original 10 passenger elevators with 9 new Otis AUTOTRONIC operatorless passenger elevators. This is one of more than 175 new and modernized office buildings, hotels, hospitals, banks, and department stores that have given AUTOTRONIC elevatoring an overwhelming vote of confidence—by buying it!

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Elevator traffic is people. They step into operatorless cars and press buttons for the floors they want. They touch upper floor corridor buttons to call UP or DOWN cars. These calls vary constantly in number and frequency during a busy building's day.

—as we can show you on an Otis AUTOTRONIC indicator panel in the lobby of a busy building.

The completely automatic supervisory system of AUTOTRONIC elevators is kept aware of every traffic change—*by the traffic itself!* Passenger calls and waiting time data are measured continuously. A change in the traffic pattern is detected automatically—and the group operation of the elevators is changed immediately to give today's finest service.

Completely automatic AUTOTRONIC elevatoring is in operation day and night, holidays, and weekends. And each car with its "automatic elevator operator" is on duty every minute of every day—*electronically!* Call any of our 268 offices for details.

Otis Elevator Company, 260 11th Ave., New York 1, N. Y.

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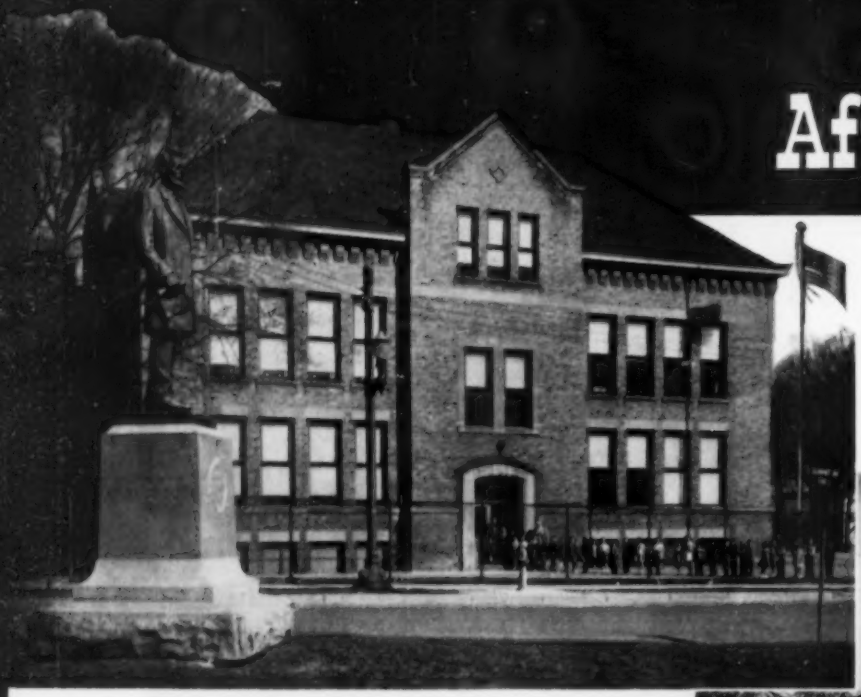
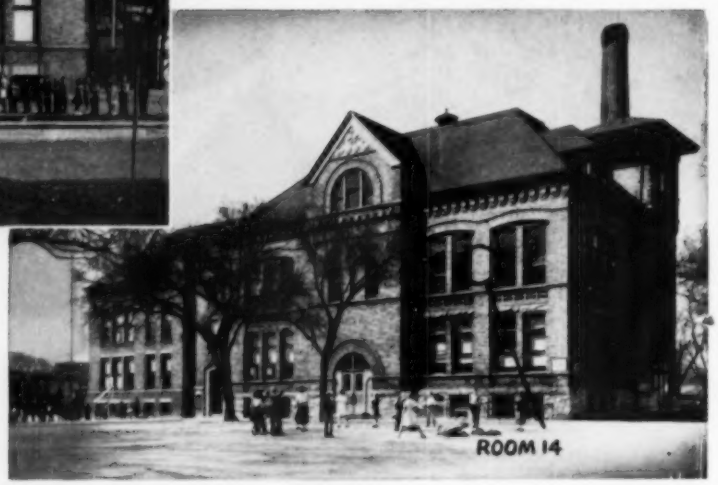
After 50 Years



LINCOLN SCHOOL
RACINE, WIS.
POWERS TEMPERATURE CONTROL
Installed here in 1903



Above: One of a number of old and modern schools in RACINE equipped with Powers Control.

Below: RACINE'S New JERSTAD-AGERHOLM SCHOOL Completed in 1952 is also Powers controlled. Only a portion of the building appears in the photo. It has 14 classrooms, an administration and community center, playroom and kitchen, and audio-visual room. It is attractive inside and out—heating and ventilation are maintained with utmost economy.

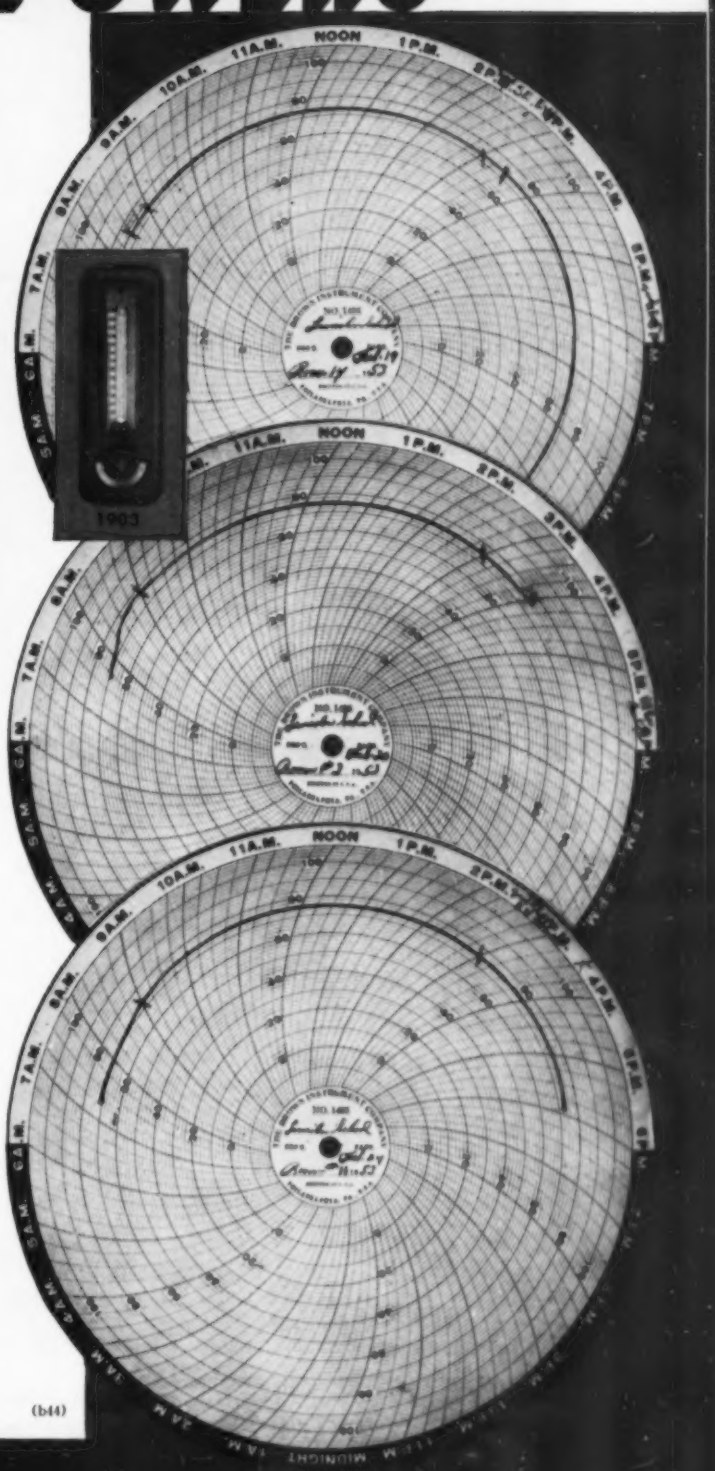
Architects and Engineers: WARREN S. HOLMES CO., Lansing, Mich.
Heating Contractor: N. A. THOMAS CO., Racine, Wis.

this test shows POWERS

Pneumatic System of

TEMPERATURE CONTROL IS STILL GIVING ACCURATE REGULATION

Miss K. Mart, Teacher in Room 14 Lincoln School, Racine, Wis. "T" is POWERS *Type A* Thermostat installed in 1903. It controls mixing dampers. Thermostat was set for 75° F. Note even control during schools hours. "RT" is Recording Thermometer which made charts at right in February 1953.



How is it possible for Powers systems to often give 25 to 50 years of dependable service?

Since 1891 outstanding features of a Powers thermostat have been: its powerful VAPOR-DISC with GRADUAL-ACTION and its famous non-bleed double valve. Proof of its superiority is revealed in the performance record shown here—as well as in many other old schools.

To get more years of better performance, greater comfort and fuel economy — install a POWERS pneumatic system of temperature control.

(b44)

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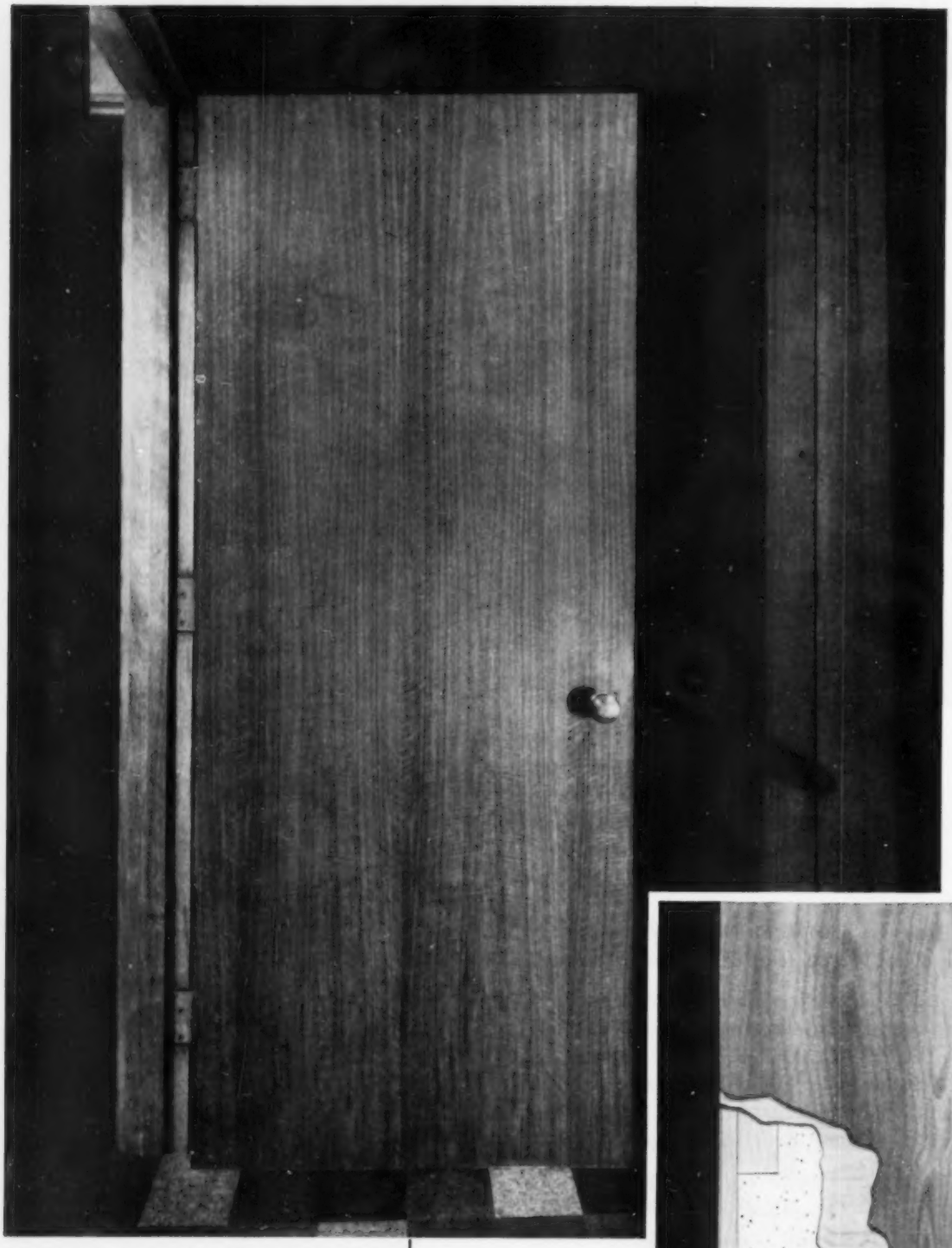

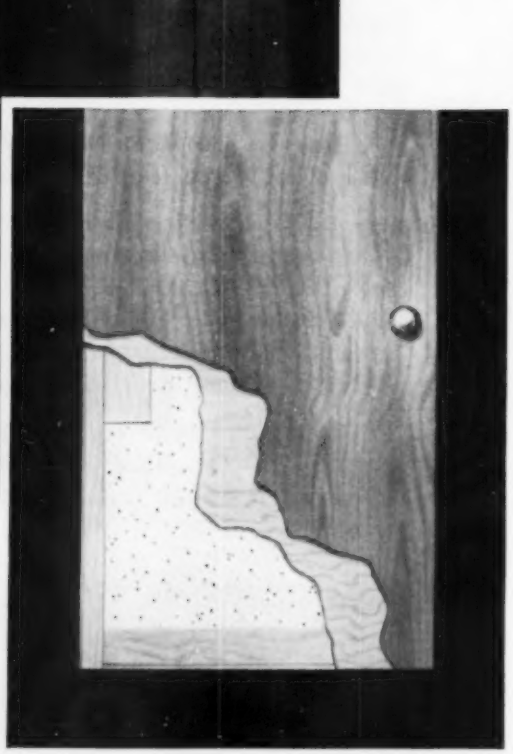

NO WONDER IT'S THE BEST—SEE HOW IT'S BUILT! Stay-Strate Doors have a special solid-core made of WELDROK*—a strong, lightweight, incombustible core material designed to keep the door straight and true for the life of its installation. Weldrok helps Stay-Strate Doors resist decay, termites, fire and sound—has better insulation value, too!

Architects, builders, lumber dealers tell us Stay-Strate is the best door ever manufactured!

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HEIGHT:	6'6"	6'8"	7'0"
	WIDTH	WIDTH	WIDTH
1¾" THICKNESS (Doors with light and louver openings available on order)	2'0"	2'0"	2'0"
	2'2"	2'2"	2'4"
	2'4"	2'4"	2'6"
	2'6"	2'6"	2'8"
		2'8"	3'0"
		3'0"	3'6"
			4'0"

Now! A GUARANTEE THAT PUTS AN END TO DOOR PROBLEMS

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UNITED STATES PLYWOOD CORPORATION unconditionally guarantees, if properly installed, this Weldwood "Stay-Strate" Door against warping, twisting, or manufacturing defects for the LIFE OF THE INSTALLATION. If any Weldwood "Stay-Strate" Door should fail to meet these standards, said door will be replaced without charge, including all labor costs of hanging and refinishing involved.

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Individually registered

Weldwood Stay-Strate Doors* are made and backed by the largest and best known manufacturing and distributing organization of its kind in the world, United States Plywood Corporation. As you can see, this unprecedented "Life-of-the-Installation" guarantee has no loopholes—and needs none!

Weldwood Stay-Strate Flush Doors have an individual beauty and reputation for durability that is all their own. That is why each Stay-Strate Door is proudly labeled with its own *registered guarantee* number. This guarantee is your protection against the door warping, twisting or delaminating in any doorway—interior or exterior!

Weldwood Stay-Strate Doors save you money because they *do* put an end to annoying and costly door complaints. Stay-Strate Doors are available in a variety of stock sizes in handsome woods such as birch, oak, walnut, Korina® and other fine hardwoods. See the complete line of Weldwood doors at any of the 73 United States Plywood or U.S.-Mengel Plywoods distributing units in principal cities, or mail coupon.

For complete specifications on Weldwood doors see our insert in Sweet's Architectural Files, or in American Lumberman, American Builder and Practical Builder directory issues.

There are Weldwood doors for every other purpose too!

FIRE DOORS. When an installation calls for a labeled fire door—select the Weldwood Fire Door† bearing the Underwriters' Laboratories Label for Class "B" and "C" openings.

STAVED LUMBER CORE DOORS. The most dimensionally stable lumber core door on the market—fully guaranteed against delamination and other manufacturing defects for two years—twice as long as most lumber core doors. Free replacement does not include cost of finishing and cost of installation.

HOLLOW CORE FLUSH DOORS. Lightweight, durable—in a complete assortment of sizes and face veneers. 40% lighter than standard panel doors.

BIRCH FACED CUPBOARD DOORS made with core of Novoply. Wide range of sizes.

NOVOPLY SLIDING DOOR UNITS. Precision built units are prepackaged, ready to install. Novoply is the flattest, most dimensionally stable wood panel made. Can be painted or stained any color. Also available with birch faces on Novoply. Units can be joined together to form extra large sliding storage walls. Available in 2 or 3 door units 6′ 9½″ or 8′ high, in widths from 2′ to 8′. Includes all hardware necessary.

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Please send me complete information on Weldwood doors.

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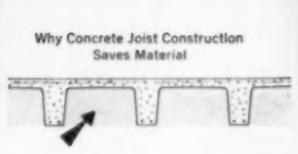
How Ceco-Meyer Steelform Construction Saved 25% on Concrete

✚ This is the story of how a Building-Realtor gained more rental income and saved on building costs. Garfield I. Kass looked at his two story building in downtown Washington, D.C. and visualized it reaching 11 more stories into the sky. That, of course, would mean more income from his building site. But a problem was posed . . . would the existing footings and columns, though designed for additional construction, carry 13 floors?

Architect James F. Hogan reasoned light loads were the answer, so he considered several floor framing methods to find as light a construction as possible. The spans were long—33 feet—and of all designs investigated Ceco-Meyer Steelform construction proved to be lightest. Why? Because 25% less concrete was required than for any other method. Ceco-Meyer Steelform construction is strong and rigid, yet light in weight—for all non-working concrete is eliminated.

Ceco Product Specialists can help you save through product engineering. So before you plan your next project, call on Ceco. Consult Sweet's File for address. CECO

Steelforms are quickly installed on open wood centering. Cost is reduced because same lumber and Steelforms are re-used from floor to floor.



Shaded portions show concrete eliminated by concrete joist construction.

CECO STEEL PRODUCTS CORPORATION
Offices, warehouses and fabricating plants in principal cities.
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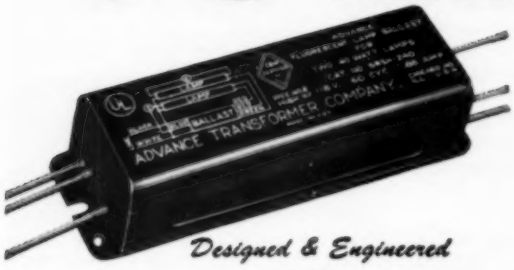

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BY THE
WORLD'S LARGEST MANUFACTURER
DEVOTED *Exclusively* TO THE PRODUCTION OF
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A tribute:

To Thomas Alva Edison, whose developments opened up an unending vista of better light for modern man . . .

To his pioneering spirit, without which our modern fluorescent lamp might have taken additional centuries to develop . . .

To the engineering skill and know-how that has created for our use, further developments in more practical, lower priced lighting for modern adaptations . . .

We, who are engaged in the business of lighting have many thanks to offer to the countless thousands who toiled to bring light to the world . . .

A pledge . . . that Advance Transformer Co., will constantly strive to maintain the high standards established within our industry, ever seeking new methods to bring better light to more people at lower costs.

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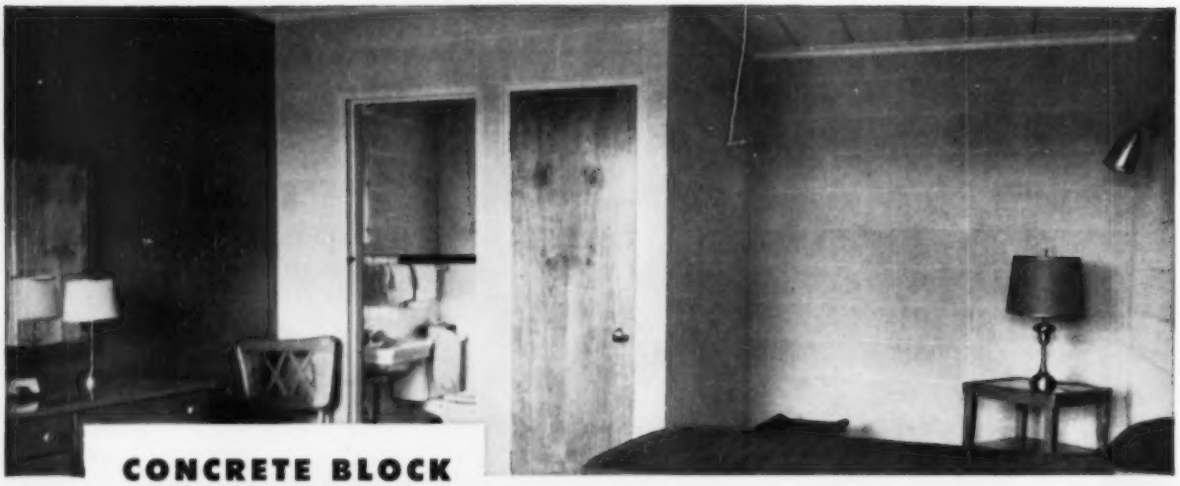

CONCRETE BLOCK INSIDE AND OUT

Contractor who built his own motel says:

"I needed the best materials for my Trav-L-Lodge —that's why I chose Atlas Mortar"

Concrete block painted in pastel colors are featured on both exterior and interior walls at the Dallas (Pa.) Trav-L-Lodge. That's why mortar joints on this job were particularly important. For this special job, general contractor and owner, Donald Hughes, specified Atlas Mortar.

Says Hughes, "Atlas Mortar is excellent for any type of masonry unit. It's smooth under the trowel—lets us get the true, tight joints that we can count on every time. That's why I've used Atlas Mortar for the past four years."

Mr. Hughes' statement is typical of many we receive from contractors, masons and architects . . . on-the-job reports . . . that praise Atlas Mortar for workability, strength and good appearance.

ATLAS MORTAR has proved itself on large jobs and small and in the laboratory as well. It complies with ASTM and Federal Specifications for masonry cement. For further information write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

OFFICES: Albany · Birmingham · Boston · Chicago Dayton · Kansas City · Minneapolis · New York Philadelphia · Pittsburgh · St. Louis · Waco

Smooth as butter—Masons go for the outstanding workability of Atlas Mortar . . . the way it responds easily to the trowel.

True, tight joints — Atlas Mortar helps assure a strong bond for masonry units . . . satisfactory hardening that produces tight joints.

PA-M-45

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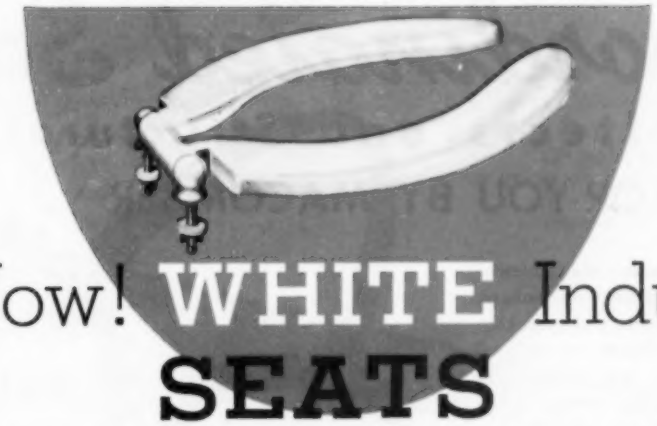
ATLAS MORTAR CEMENT ®

THE SATIN OF MASONRY CEMENTS

UNITED STATES STEEL HOUR—Televised alternate weeks—See your newspaper for time and station.

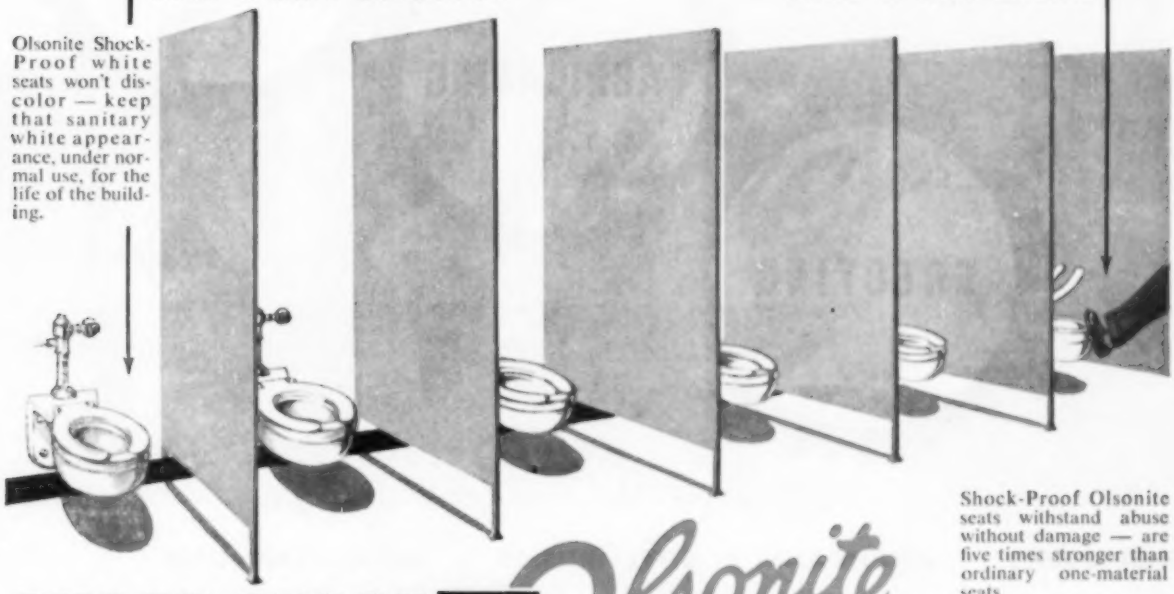


Now! WHITE Industrial SEATS

THAT WON'T DISCOLOR

THAT WON'T BREAK

Olsonite Shock-Proof white seats won't discolor — keep that sanitary white appearance, under normal use, for the life of the building.



Shock-Proof Olsonite seats withstand abuse without damage — are five times stronger than ordinary one-material seats.

SHOCK-PROOF SOLID Olsonite SEATS

A truly white seat looks more sanitary, is more attractive, brightens and lightens the room. And now—you can specify a white seat that *stays* white for a lifetime of normal use.

The new Olsonite White Shock-Proof Seats are ideal for all industrial and public toilet installations. Independent research laboratory tests have proven no visible discoloration, even after years of service. And these tests have also proven an ability to withstand shock five times greater than ordinary solid seats. Even deliberate abuse in public toilets and industrial installations won't crack, chip, or break the new Olsonite Shock-Proof Seats —and they won't absorb water.

Add to these new advantages the Olsonite features of concealed hinge, no exposed metal to rust or corrode; one material, sanitary white all-the-way-through; and one piece construction, no applied finish to crack or peel. Then—specify the seat that *stays white*—that can "take it" without damage even in public toilets—Solid Olsonite SHOCK-PROOF Seats.

All Olsonite Industrial, Commercial, and Public Toilet Seats are now of Shock-Proof Construction. They are available in both black and white.

Olsonite's complete catalog is available on request. Please write on your letterhead to:

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Plastics Division, 8561 Butler Avenue, Detroit 11, Michigan

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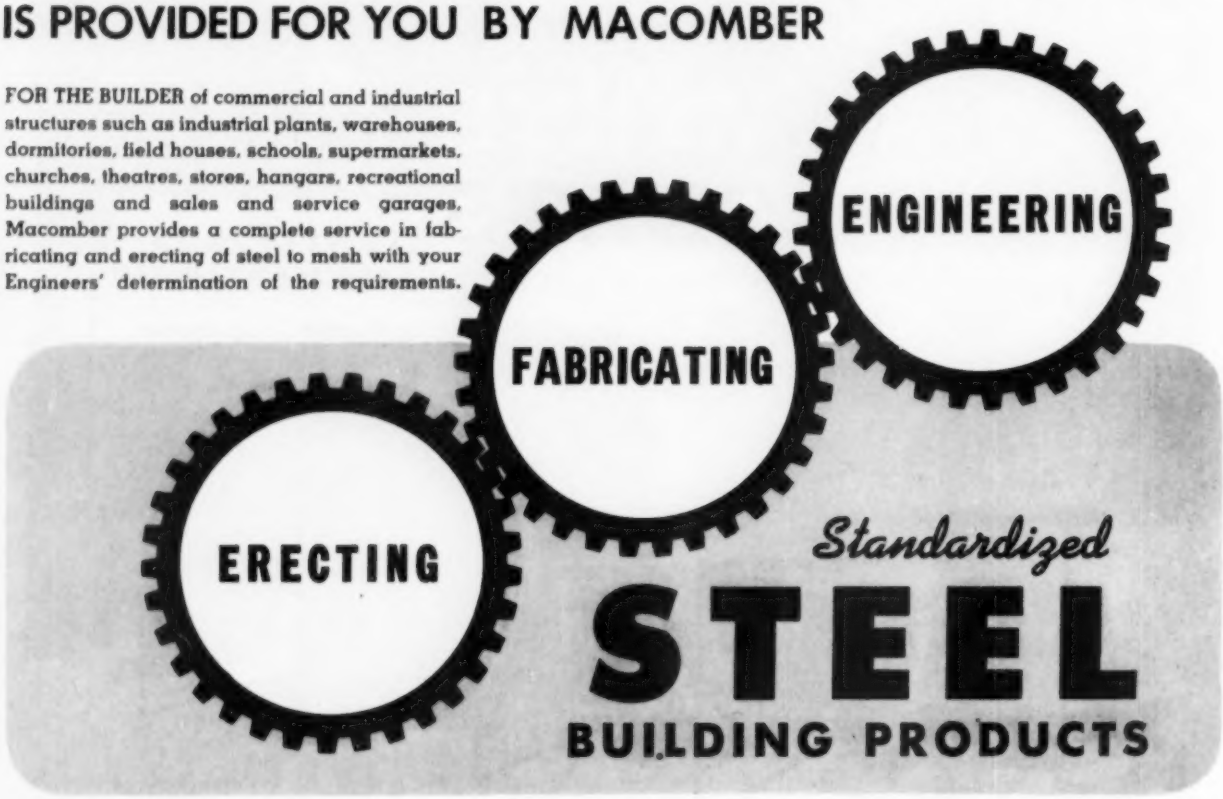

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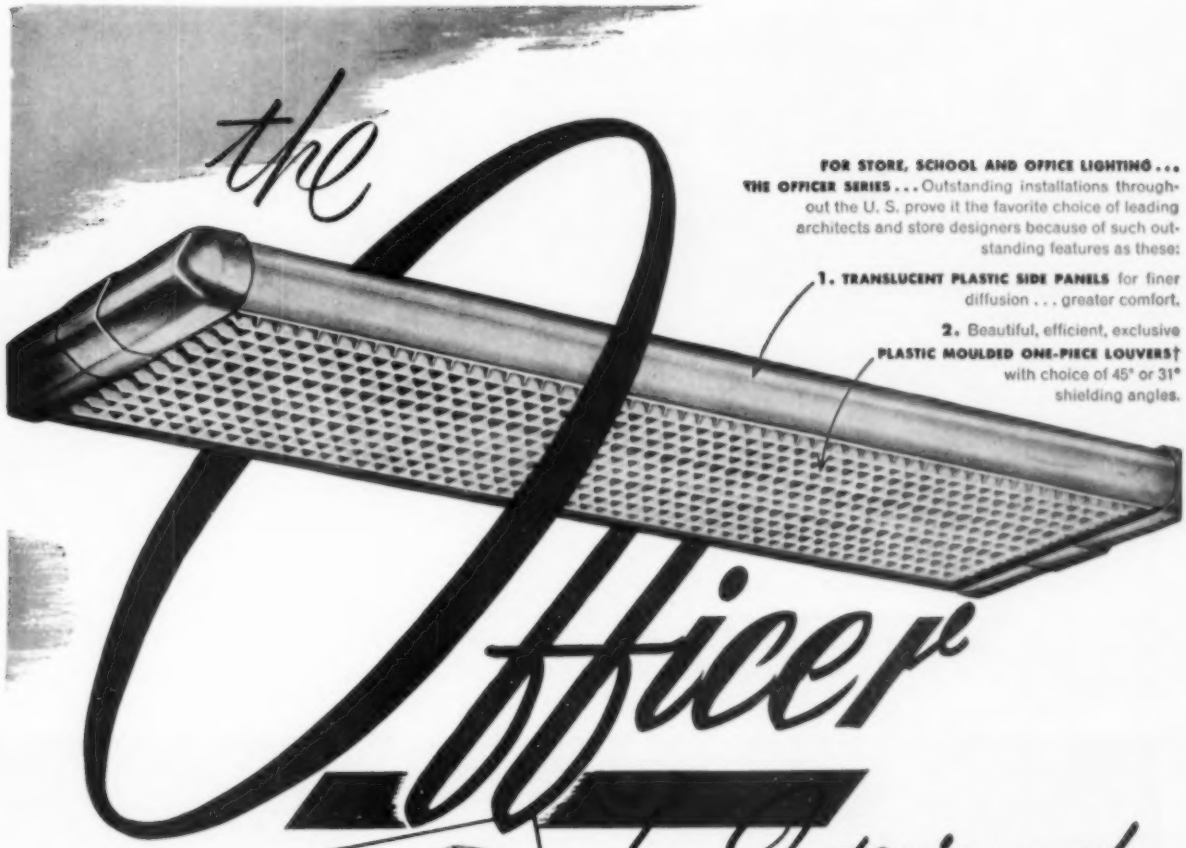

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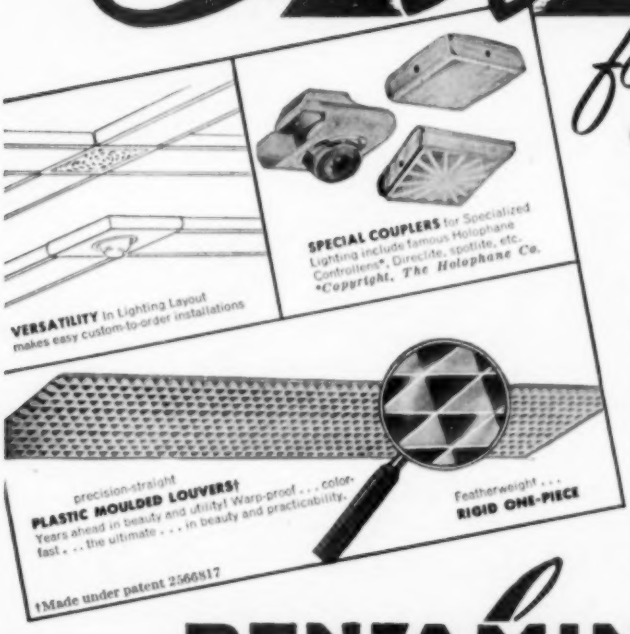
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SPECIAL COUPLERS for Specialized Lighting include famous Holophane Controllens*, Direclite, spotlite, etc.
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Distinctive . . . years-ahead styling . . . Yes, you have only to see the Officer in operation to appreciate its outstanding beauty . . . its harmony of line which fits it for every interior of distinction.

Distinctive, too, in its years-ahead versatility, the Officer Series has the adaptability to fit it to every lighting need . . . to special room arrangements . . . to special spot effects.

Yes, in Beauty . . . in Versatility . . . and in Constructional Advancements . . . on every count the Officer is a Beauty Winner!

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The Officer is available for 2, 3, or 4 fluorescent lamps in regular 40 watt or Slimline in 48", 72" and 96" lengths.

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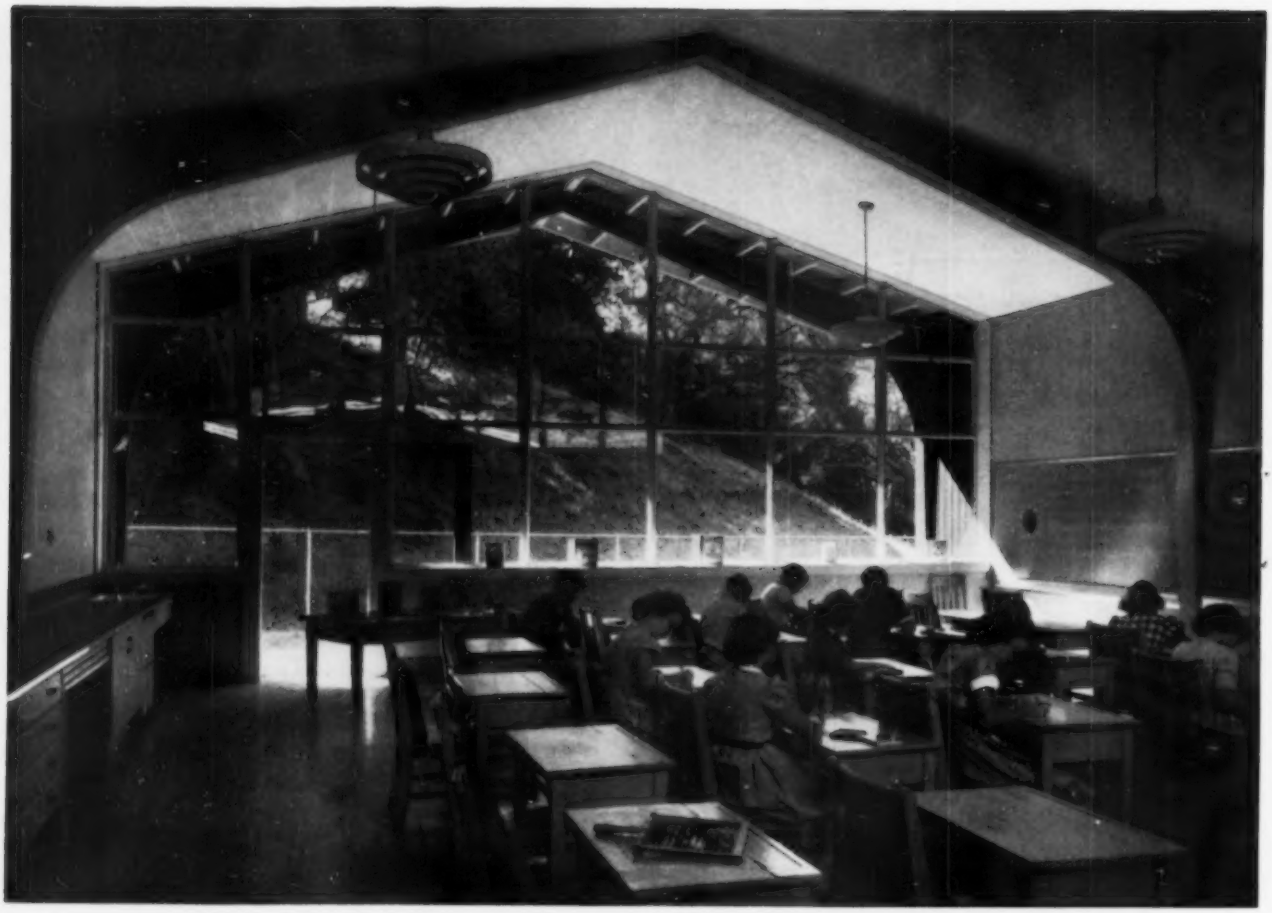
THANKS TO DAYLIGHT WALLS of L·O·F Glass, there will be no "penned-up" feeling for children attending the prize-winning Oak Manor Elementary School in Fairfax, California. Exterior and interior views here show the natural blending of outdoors and indoors. Architect: John Lyon Reid, San Francisco, California.



IN *The School Executive's* THIRD ANNUAL COMPETITION FOR BETTER SCHOOL DESIGN*...

17 out of 17 winners used modern daylight walls!

That's quite a record—out of 139 schools entered, all seven winning designs and all ten honorable mentions have daylight walls, windows of clear glass extending from wall to wall and sill to ceiling. It's an indication of a sharp, decisive trend in school design.

In the words of the judges themselves: "Each (of the winners) showed a sensitive relationship between indoor and outdoor surroundings. Each was sensitive and responsive to its site. Each of them used the outdoors to enhance the environment of people occupying rooms. In each of the winners there has been a conscious effort to combat the confining effects of people contained in limiting boxes."

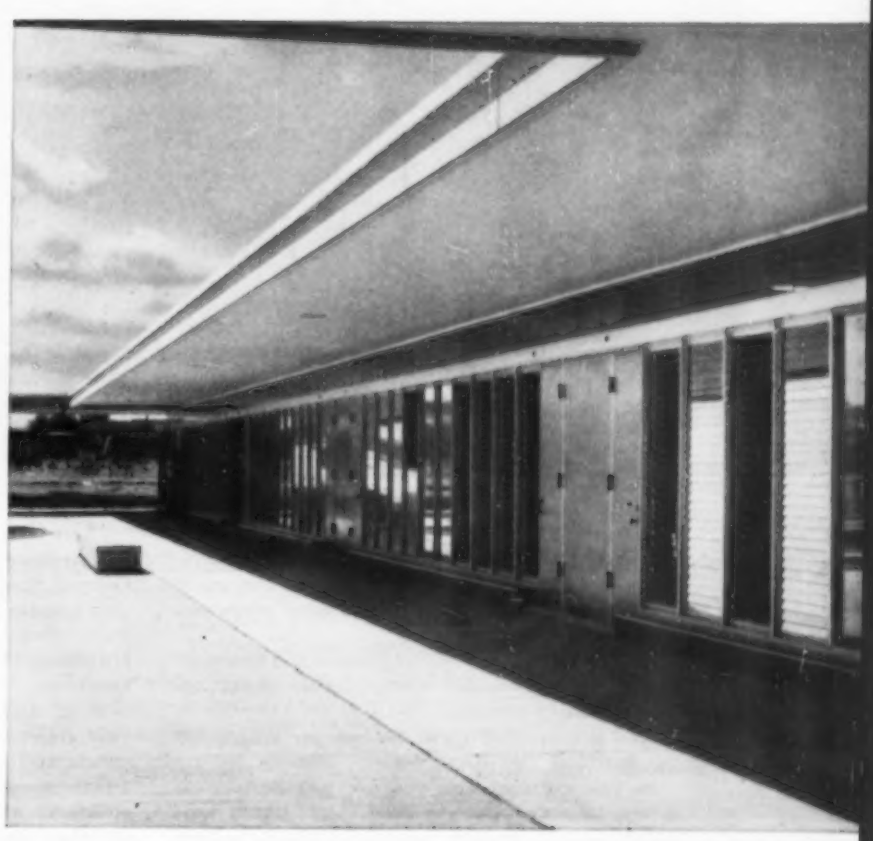
These words reflect the growing enthusiasm of educators all over the country for the use of daylight walls to eliminate "that cooped-up feeling". These daylight walls add a feeling of spaciousness . . . bring light and view inside . . . make the classroom a part of the world beyond.

School boards like daylight walls, too. They are economical to build (less masonry, lath, plaster and paint). Economical to maintain (glass is easy to clean, doesn't wear out). When glazed with *Thermopane** insulating glass, heating costs are lower and areas close to windows are comfortable on coldest days.

For a more complete story on the use of daylight walls in school design, write for the book described briefly below or call your nearby Libbey·Owens·Ford Glass Distributor or Dealer. *®

Free Book on School Daylighting

You'll enjoy—and get a lot of good ideas from—this 24-page authoritative publication on school daylighting: "How to Get Nature-Quality Light for School Children". For a free copy write Dept. 4584, Libbey·Owens·Ford Glass Co., 608 Madison Ave., Toledo 3, Ohio.



HERE'S A HEALTHY and stimulating environment for children in the Mirabeau B. Lamar Junior High School at Laredo, Texas. For fullest ventilation, these daylight walls are glazed with jalousies made of L·O·F Glass. Architects: Caudill, Rowlett, Scott Associates, Bryan, Texas.

*Awards announced at 1954 convention of American Association of School Administrators in Atlantic City.

L·O·F GLASS FUELS

THERMOPANE • PLATE GLASS • WINDOW GLASS

DAYLIGHT WALLS

. . . THAT LET YOU SEE

OTHER L·O·F PRODUCTS: Vitrolite* · Tuf-flex* Tempered Plate Glass · Tuf-flex Doors · Safety Glass · E-Z-Eye Safety Plate Glass · Fiber-Glass · Corrulux*

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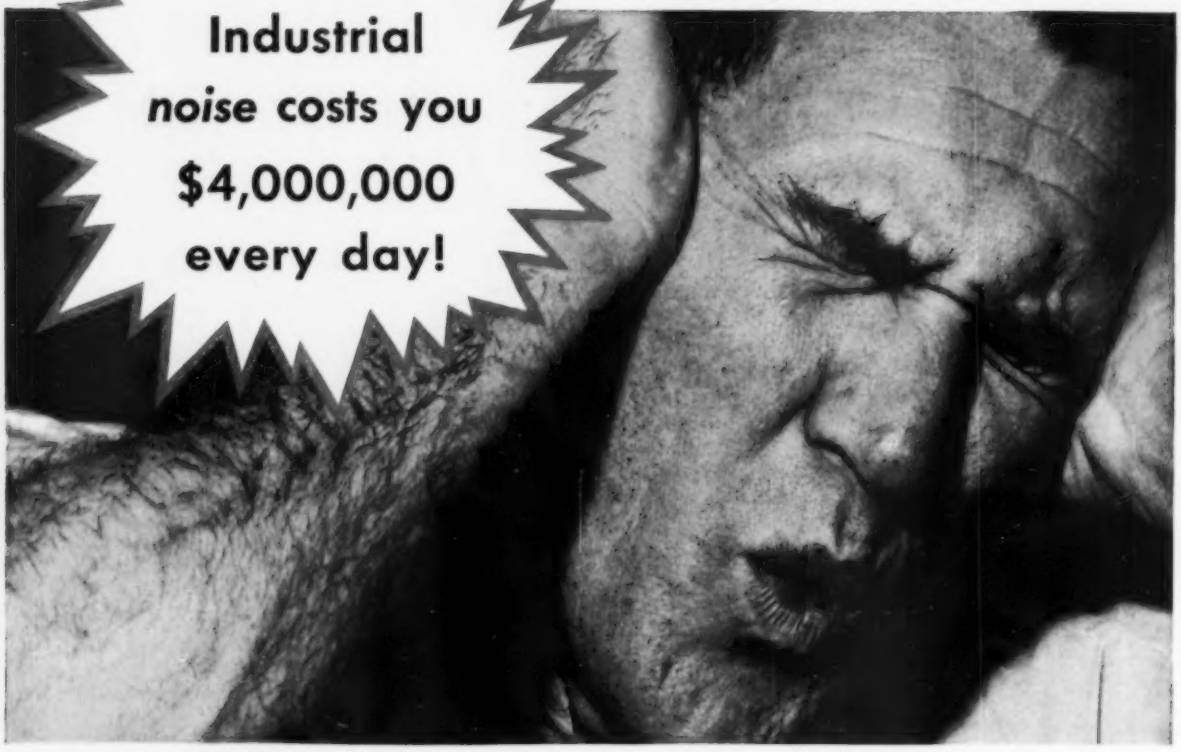
Fenestra 50 YEARS

"A salute to those who made it possible" *

Industrial *noise* costs you $4,000,000 every day!



You know all the losses industrial noise can bring —worker fatigue, absenteeism, labor turnover, accidents—$4,000,000-a-day worth! But *you* can avoid them if you keep one basic idea in mind when you *plan* your building.

It's a wonderful *new* building idea called Fenestra* Acoustical Holorib that forms a *combination* acoustical-structural roof.

And it costs as little as *75 cents per square foot . . . installed!*

In one compact unit you get: (1) perforated, heavy, 18-gauge Holorib Steel Deck, which provides a smooth-finished, metal-faced interior ceiling (2) sound-absorbing element which also provides efficient heat insulation (3) strong steel surface for support of 1″ wood fiber insulation and finished roofing.

Holorib is lightweight. It saves you building time, labor, materials and money. It's almost maintenance-free but, if you want to, you can wash or paint it time after time without cutting its acoustical efficiency a bit. And it is *noncombustible!*

There is *no* comparable building material. That's why you'll find Acoustical Holorib Roof Deck in the General Motors Technical Center, Warren, Michigan; Standard Pressed Steel Company, Jenkintown, Pennsylvania; Simmons Saw & File Company, Fitchburg, Massachusetts, and many other modern structures.

Write today for complete information—or have your architect write—and check on Fenestra floor panels and wall panels. Fenestra Metal Building Panels speed building and lessen the need for structural steel. Write E. A. Miller, Manager, Building Panel Division, Detroit Steel Products Company, Dept. PA-8, 3409 Griffin St., Detroit 11, Michigan.

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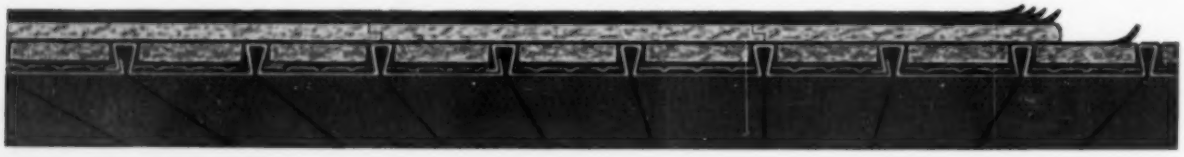
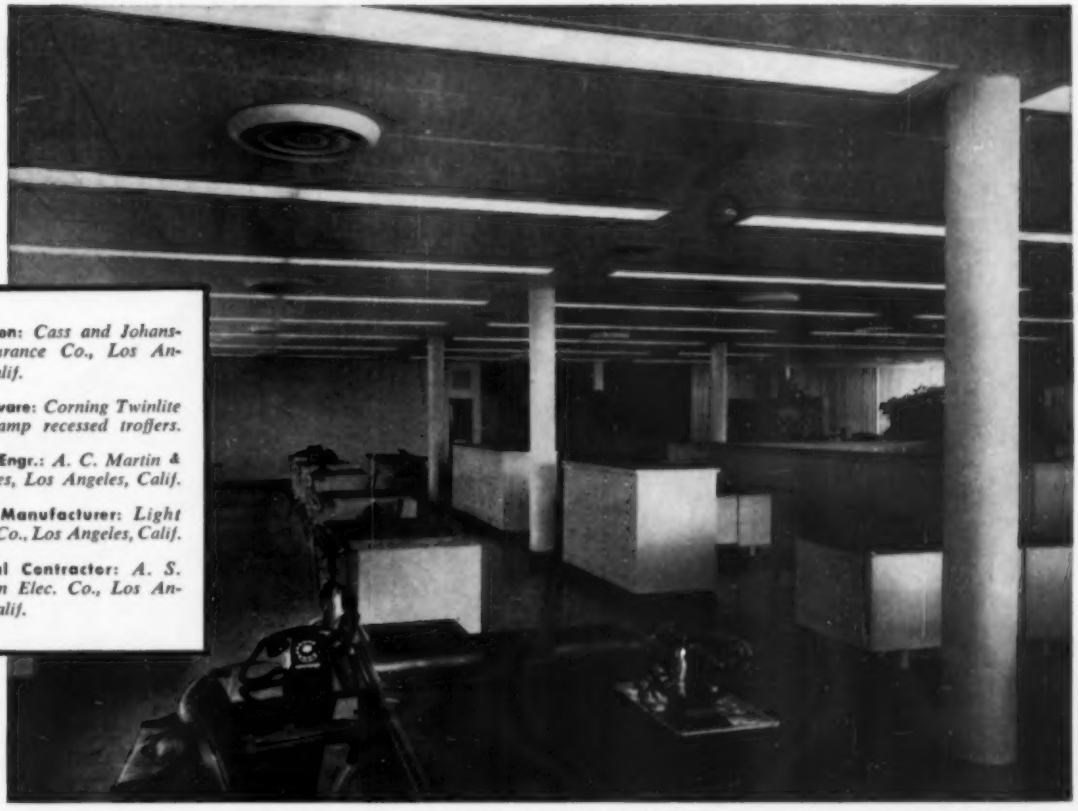
* Your need for a maintenance-free, noncombustible, built-in acoustical treatment encouraged us to develop Fenestra Acoustical-Structural Building Panels—a great advancement in building products.





Installation: *Cass and Johansing Insurance Co., Los Angeles, Calif.*

Lightingware: *Corning Twinlite in two-lamp recessed troffers.*

Arch. & Engr.: *A. C. Martin & Associates, Los Angeles, Calif.*

Fixture Manufacturer: *Light Control Co., Los Angeles, Calif.*

Electrical Contractor: *A. S. Schulman Elec. Co., Los Angeles, Calif.*

The illumination achieved in this engineered lighting assignment is approximately 55-foot candles.

Insurance firm solves two lighting problems at once

Just think—combining beauty and high lighting efficiency used to be one of your toughest problems. Now—it's one of your easiest!

This insurance office is a case in point. Requirements called for high illumination – necessary to facilitate comfortable reading of detailed information—and functional beauty to match a modern office.

In this case, CORNING Twinlite panels provided efficiency with beauty. A prismatic fluorescent lightingware made of water-white crystal glasses, CORNING Twinlite panels give controlled brightness with true color transmission.

Prisms accurately direct light to working areas and they keep glare from critical zones. Twinlite panels have a special configuration on their back surfaces. CORNING Twinlite is excellent for use in banks, stores and restaurants. You can order Twinlite in flat and curved panels in a standard width of 11 inches and a standard length of 50 inches. And you can use Twinlite with low ceilings or high. Your clients will endorse your selection of Twinlite for its beauty, its efficiency—and for its easy cleaning.

You can call on Corning to help you simplify many lighting problems. Corning makes lightingware for prismatic fluorescent, diffusing fluorescent, louvering fluorescent and prismatic incandescent applications. "Architects and Engineers Handbook of Lighting Glassware" gives you the facts on all of them.

You'll find this handbook helpful in estimating lighting requirements and in writing specifications, too. It suggests lighting plans to help you even further. Let us send you a free copy. Mail the coupon today.

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Corning means research in Glass

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Company.....

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City..... Zone..... State.....

After 21

...this Insulite Roof Insulation

"We applied Insulite Roof Insulation on the Valley Cadillac Building when it was erected. After 21 years we were called upon to re-roof this Rochester, N.Y. building. When we removed the slag we found the roof insulation perfect... still firm and solid underfoot. All we had to do was resurface the roof."

GEORGE BALLARD
George Ballard, Inc.
Rochester, N.Y.

Build and insulate with double-

years...

job is as good as new!

The ability of a roof insulation to perform satisfactorily over a long period of time is certainly one of your prime considerations when planning a roof.

This fact, then, may be of interest to you: The first wood fiberboard roof insulation jobs in the world were Insulite jobs. As far back as 1916, Insulite was being used to insulate roofs. Recent examinations of these early jobs proved that over the years, Insulite had maintained its important physical properties—tensile strength and insulating efficiency—and still exceeded today's Federal specifications.

One of the big reasons why Insulite lasts is that it is able to withstand abuse during application.

A roof insulation that is easily injured while being applied may be the cause of serious roof failure. Since Insulite is tough and rigid, the likelihood of damage during application is remote. Pictures on these pages illustrate three reasons why you can specify Insulite Roof Insulation with confidence.

1. Withstands Traffic. See for yourself. Ask your Insulite sales representative for a sample. Then test it. See how strong and rigid it is. That's because Insulite, the original wood fiberboard insulation, is made only from hardy Northern wood fibers.

2. Handles Without Breaking. This is one of the big reasons roofers like Insulite Roof Insulation. The strong, rigid sheets are built to withstand the rough handling they are subjected to under actual job conditions! Breakage is practically eliminated.

3. Cuts Cleanly and Easily. Next time you're out on a job, see how quickly and easily the roofer cuts Insulite. If you have time, talk with him . . . chances are he'll tell you that cutting ease is one of the reasons he likes to work with Insulite.

The most complete book of its kind. A valuable addition to your file. Contents include: (1) Coefficients of Heat Transmission and Thermal Resistance of Various Types of Flat Roofs Covered with Built-up Roofing, (2) Condensation Chart and (3) Fuel and Radiation Requirements Chart—plus product specifications and performance data. Write Insulite, Minneapolis 2, Minnesota for your free copy.

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INSULITE DIVISION, Minnesota and Ontario Paper Company, Minneapolis 2, Minnesota

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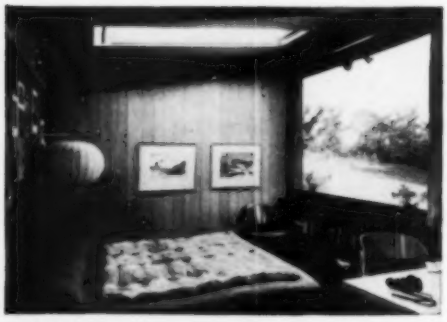
duty **INSULITE**

The original structural insulation board

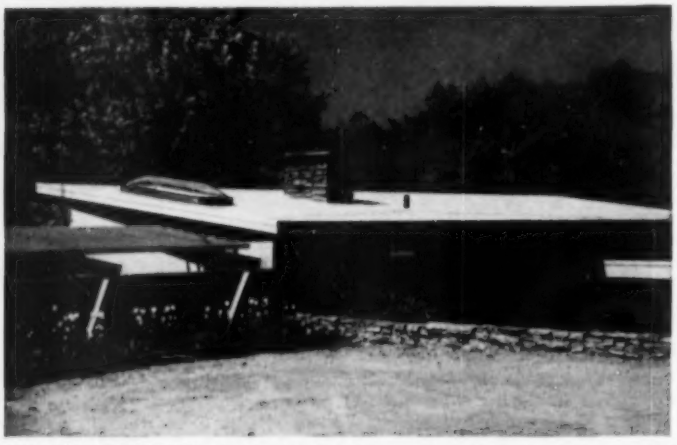
TOPS IN TOPLIGHTING

WASCOLITE SKYDOMES highlight the interior design of Architect Robert A. Little's home in Cleveland, Ohio. Note installation of electric lighting fixtures in the well for unusual nighttime illumination effects. Wascolite Skydomes enhance the atmosphere of gracious living . . . eliminate dark corners . . . permit functional use of space.

SKYDOME ARRANGEMENT brings glarefree daylighting into the Little kitchen. Specify White Translucent Skydomes to daylight task areas; for special effects, specify Clear Colorless.



IMAGINATIVE USE of Skydome admits moonlight and starlight into master bedroom. To turn off the daylight — or moonlight — specify Wascolite Skyshades. For added insulation, specify Wascolite Ceiling Domes.



HANDSOME SKYDOMES blend with surroundings — do not require special roof construction. Skydomes are leakproof; their extruded aluminum frames have built-in weepage arrangement that provides complete condensation control. Prefabricated Skydomes are lightweight, shatter-resistant, virtually self-cleansing. They can be installed in minutes, using only a screwdriver.

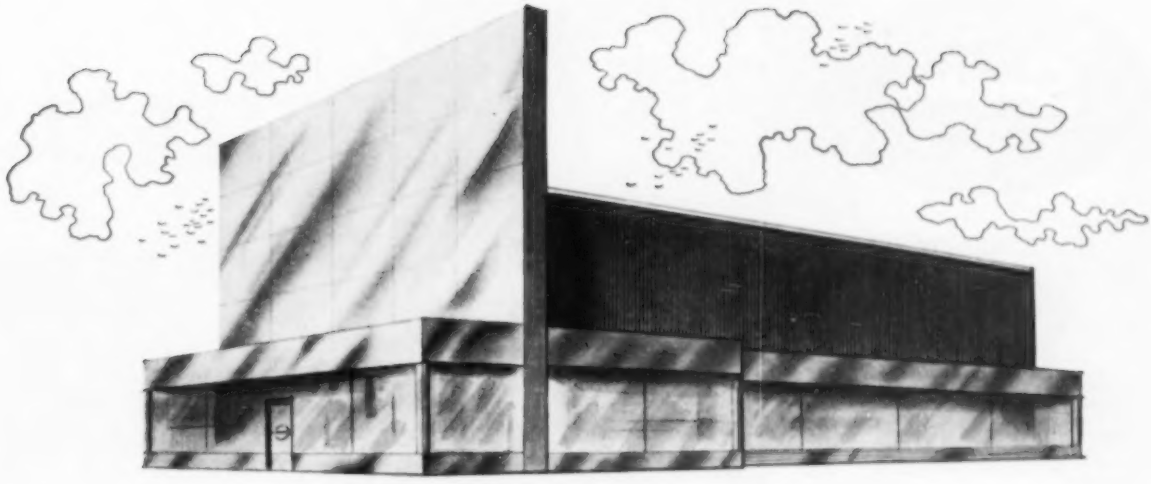
CREDITS: ARCHITECT (AND OWNER): ROBERT A. LITTLE, CLEVELAND, OHIO.

NEW WASCOLITE VENTDOME, with motor-driven air exhaust, provides toplighting and ventilation through one roof opening. FHA has now approved interior bathrooms and utility rooms. Use Ventdomes to daylight and ventilate these areas.

Patent No. 2610593 and Patent Pending.

wascolite skydomes

See Sweet's Catalog or write ..... **WASCO FLASHING COMPANY,** 90 Fawcett Street, Cambridge 38, Mass.



HELP *your clients* **STOP customers....** *with CRUCIBLE stainless steel*

Make store fronts so attractive your clients' prospective customers can't help trying to see what's "on the inside." That's the job for the happy blending of good design and Crucible Rezistal® stainless steel.

There's *something modern* about stainless. It's neat, simple, attractive. And it's practical, too. For, added to its well-known ability to stay bright and clean with just a rare "once-over-lightly," is its wonderful workability. *You can't design* a store front or interior component that's impossible with Crucible stainless. Stainless makes ideal curtain walls, too, because of its exceptional ability to meet the most rigid fire tests, plus its high strength-weight ratio.

So remember – for exteriors or interiors . . . for hardware, trim or structural parts – Crucible stainless steel is the *modern architectural metal that forces attention.* For specific help in deciding which of the large Crucible family of stainless steels will work best in applications you are planning – call Crucible.

CRUCIBLE first name in special purpose steels

54 years of Fine steelmaking **STAINLESS STEELS**

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these selected acoustical specialists are trained for efficient installation

The Simpson Certified Acoustical Contractors listed at the left are outstanding experts in the field of noise control. They have been selected by Simpson's acoustical staff as the foremost firms in each territory. Through constant inter-communication, periodic group meetings with Simpson experts, and on-the-job training of their mechanics, these acoustical contractors are amply qualified to make the best use of Simpson's fine acoustical materials . . . including the new *Forestone* fissured fiber tile. When you call in a Simpson Certified Acoustical Contractor you are assured of superior workmanship with superior materials.

Forestone INSTALLED *EXCLUSIVELY* BY
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amazing NEW development!

Forestone

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ACOUSTICAL TILE

(PATENT PENDING)

FISSURED FOR BEAUTY...*FIBER* FOR ECONOMY

For the first time in history you can have an acoustical ceiling combining the rich, travertine-like charm of fissured tile with the economy of fiber tile. *Forestone,* an exclusive Simpson research development, has three basic advantages:

BEAUTY

Forestone has a natural look, creating a ceiling of architectural distinction. Its flame resistant finish has a *warm,* cream tone that blends with every type of wall and all decorative schemes. Available *square edge* as well as beveled, *Forestone* is the first fiber tile that permits an "overall" pattern without accentuated joints. Either beveled or square edge, the irregular, random-spaced fissures create a distinctive pattern of light-and-shade.

ECONOMY

Forestone has the basic economy of wood-fiber, with its low cost and ease of installation . . . the attractiveness and distinction of fissured mineral tile, but at much lower cost. Never before has the beauty of fissured tile been available in this price range.

EFFICIENCY

Forestone has high sound absorption, equivalent to fissured mineral tile or perforated fiber tile of equal thickness. *Forestone* is an efficient acoustical material that is beautiful and *economical.*

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A written guarantee covering materials and workmanship is available.

EXCLUSIVE WITH SIMPSON LOGGING COMPANY
AT SHELTON, WASHINGTON

Address inquiries to Simpson Logging Company. 1010 White Building, Seattle 1, Washington

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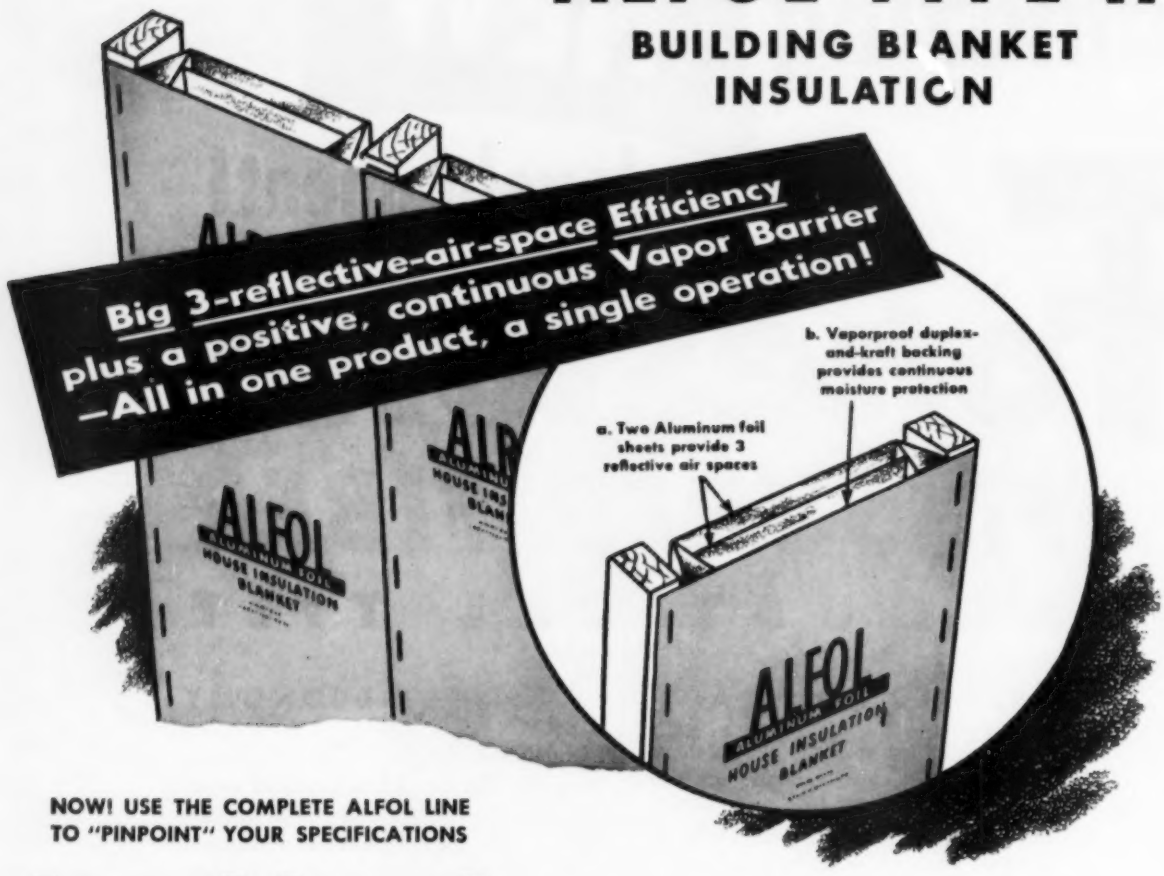
and Simpson Acoustical Contractors

ALFOL TYPE II

BUILDING BLANKET INSULATION


Big 3-reflective-air-space Efficiency
plus a positive, continuous Vapor Barrier
—All in one product, a single operation!
b. Vaporproof duplex-and-kraft backing provides continuous moisture protection
a. Two Aluminum foil sheets provide 3 reflective air spaces
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HOUSE INSULATION
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NOW! USE THE COMPLETE ALFOL LINE TO "PINPOINT" YOUR SPECIFICATIONS

ALFOL Type IV—Four reflective air spaces for the utmost in thermal and vapor barrier efficiency.

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Here's B-I-G insulation value in a clean, compact "package"—ALFOL Type II. Just 2 aluminum foil sheets and a heavy kraft-and-duplex backing. Yet on down-flow heat, for example, its thermal value surpasses that of even *full-thick* bulk materials! (Authority: U. S. Bureau of Standards.)

And that heavy vaporproof backing, by which ALFOL is applied across stud or joist faces, provides a positive, *continuous* vapor barrier . . . the finest condensation "insurance" obtainable.

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● WEST HEMPSTEAD HIGH SCHOOL
West Hempstead, N. Y.
Architect: Starrett & Van Vleck,
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● What do you look for in a good window—maximum light, controlled ventilation, weather-tightness, easy operation, permanent beauty, low maintenance cost?

General Bronze offers you all these in its Permatite line of aluminum windows... *plus* a background of 40 years' practical experience that can be of real help to you in solving your problems pertaining to windows, spandrels, curtain walls and architectural metalwork.

Whether your new projects involve schools, hospitals, apartments, commercial or monumental buildings, you'll do well to specify "aluminum windows by General Bronze." Our reputation for quality products, for sound engineering and design, for precision workmanship is known and accepted from coast to coast.

As the world's largest fabricator of aluminum windows and architectural metalwork, it has been our privilege to work closely with hundreds of leading architects on both large and small projects. From this extensive experience we have learned what features architects want in windows—what kind of help they appreciate most—what makes their job run easier and smoother.

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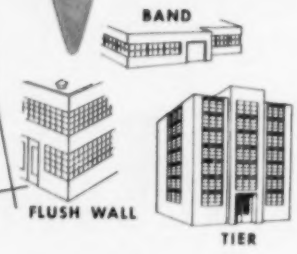
ALUMINUM PROJECTED WINDOWS IN PANEL WALL ARRANGEMENTS



Bayley Visioneering makes another contribution to advanced building architecture. Without the costliness of special window designing you can now execute many of your design treatments in modern panel-wall or "skin" construction. With Bayley sub-frame design, which accommodates separate window units, standard Bayley Aluminum Projected Windows (with channel frames) of any standard size can be used—offering wide flexibility in the use of newer panel decorating materials, plus the desired window area for providing maximum air, light and vision. The maintenance-free aluminum construction of the Bayley projected-type window complements all types of building materials. If you're not fully acquainted with this newest Bayley development be sure to look up Bayley's Aluminum Window Catalog in Sweet's or write.

WRITE TODAY for these two helpful Data Files . . .

The Catalog gives you complete specifications, while the Drafting Room Standards give full size details for drafting simplification.

* *Visioneering—The science of coordinating vision, air and light in modern building walls with windows of advanced design.*

Bayley Visioneering Reflects 75 Years of Reliability

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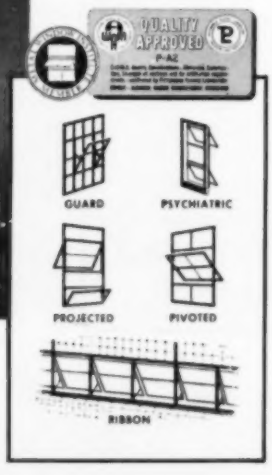

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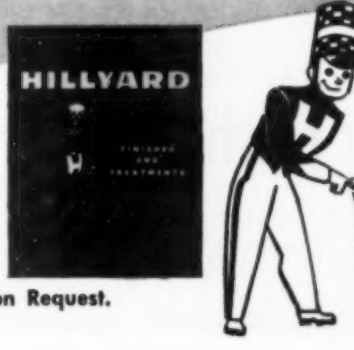

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Our first step was to establish laboratory facilities in which every possible condition of air distribution could be simulated. After a comprehensive analytical and testing program, the variables which had to be considered were compiled into the form of usable application engineering data. This tabular information is now time-proved and has been used for years by engineers, architects, and contractors as the basis for determining, in the job layout stage, the exact requirements for any desired conditions. This trail-blazing approach on the part of Barber-Colman engineers marked the beginning of *engineered* air distribution in the heating, ventilating, and air conditioning field.

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The laboratory facilities enabled our engineering staff to apply its talents to a number of problems confronting the industry, with the result that many new developments were introduced. Among these were volume control and air flow balancing devices (notably opposed-blade dampers and Volocitrols); air turning devices (Airturns and Deflectrols); ceiling outlets (round, square, and Line-O-Flo straight-line diffusers), and many more. More recently, our staff has pioneered in the solution to the problems encountered in high velocity systems. The laboratory lends itself to the solution of unusual air distribution problems, and many engineers and architects have availed themselves of our facilities and background of experience.

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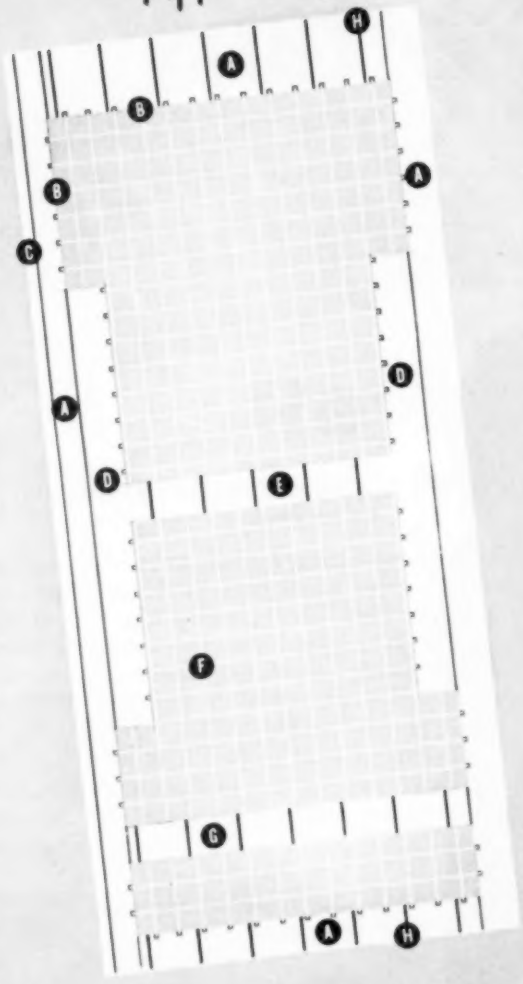

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B. Gridwork hand assembled and mortised into stiles and rails for greater strength.

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D. Lock area, on each side, softwood — 6" wide and 21" from either end. Varies in length in proportion to specified height of door.

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All metal sections for complete corrosion resistance.

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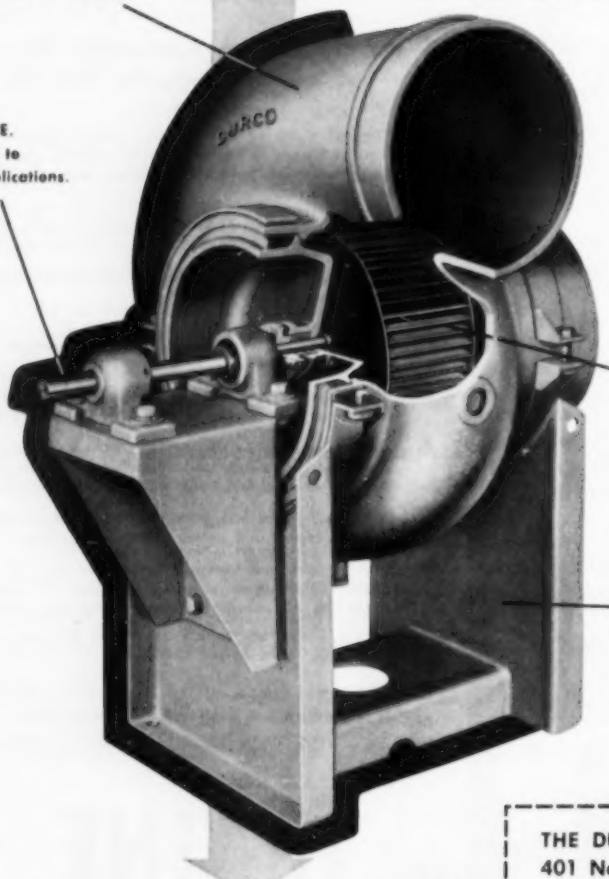

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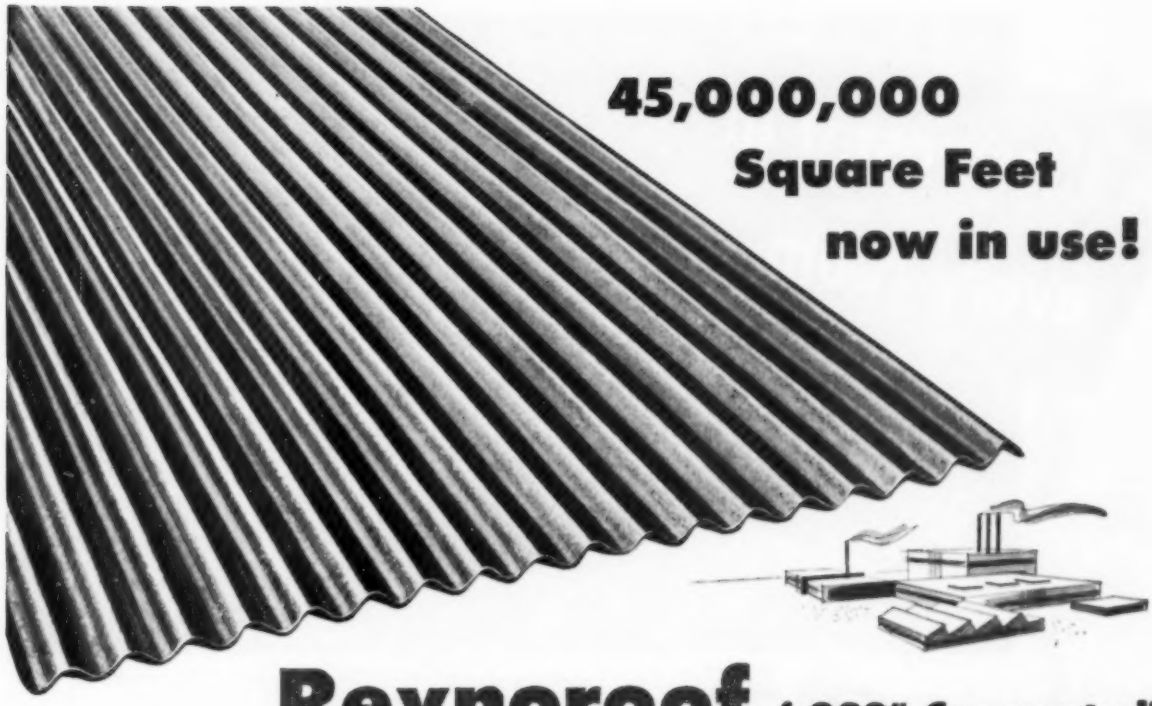

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preferred for low cost and lowest maintenance

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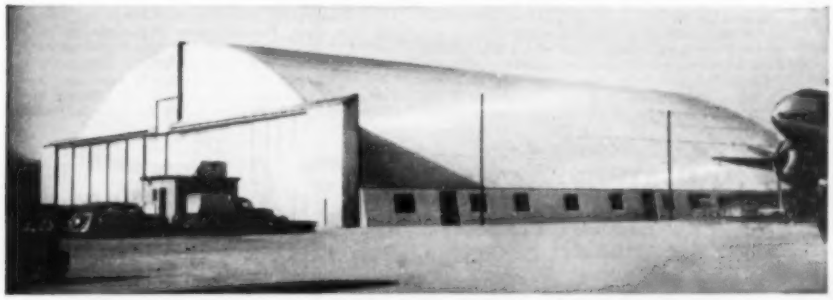
Also Reynoside, ribbed embossed siding, ribs 4" or 8" o.c., 1" deep. Lengths up to 14' 5½".



A complete installation service is available. For name of nearest jobber-erector, call the Reynolds office listed under "Building Materials" in classified phone books of principal cities. Or write to Reynolds Metals Company, Building Products Division, 2014 South Ninth Street, Louisville 1, Kentucky.

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IRON FIREMAN SelecTemp TRADE MARK CENTRAL HEATING

Continuous Modulated Heat with Individual Room Control, for Gas, Oil, or Coal

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The temperature of every office can be regulated to suit individual needs. Temperature stays at thermostat setting regardless of varied heat loss from glass areas, or from cold and warm sides of the building.

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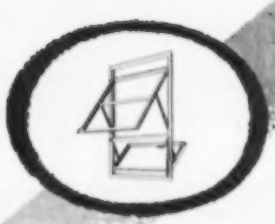
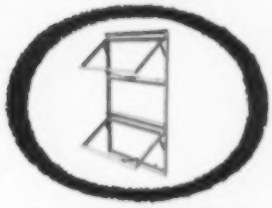
Whichever it is, we've good reason to believe there's a Ware window that'll suit your needs to a "T". Why? Because Ware engineering and quality standards have proved their value to so many others, in so many varied applications.

Why not get all the facts for yourself? Our sales engineering staff is ready to assist you on special problems—and our regional warehousing system provides overnight service to most cities. Write Dept. PA-8.

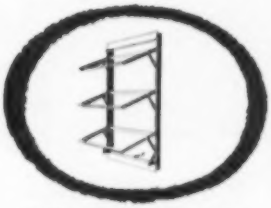


Projected

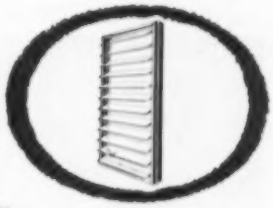
Casements



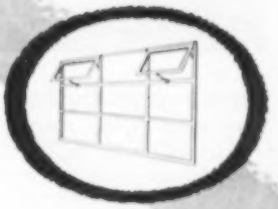
Econ-O-Ware Awning



Intermediate Awning



Jalousie



Econ-O-Wall

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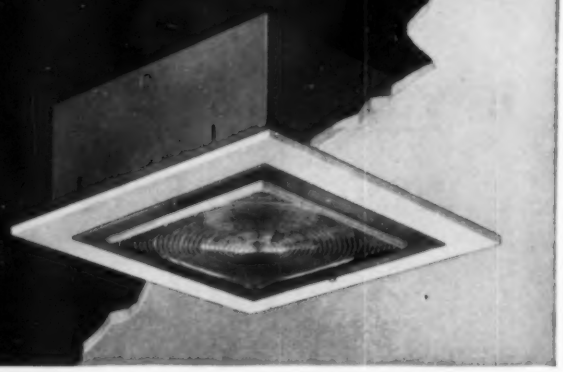
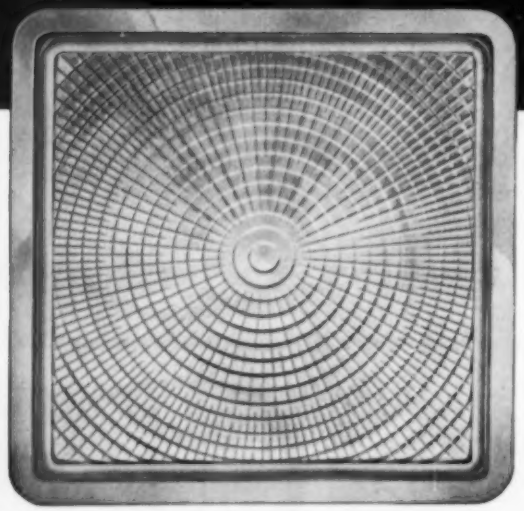
MEMBER OF THE ALUMINUM WINDOW MANUFACTURERS ASSOCIATION

Offer clients these benefits by specifying

ART METAL advanced ELIPTISQUARE





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- Highest light transmission efficiency
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- Edge light to ceiling for visual comfort
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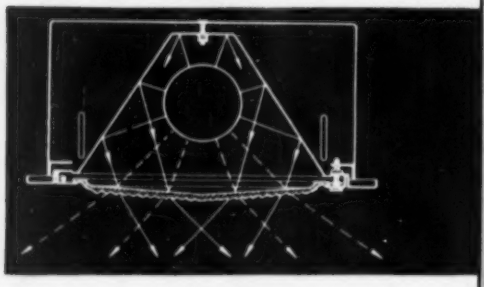
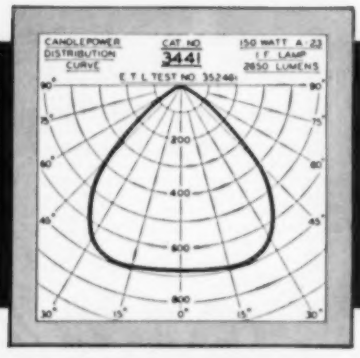
advanced ELIPTISQUARE
Multiplies Light Output



Eliptisquare reflector redirects *all* box-enclosed light downward through AMCOLENS to multiply lamp light utilization.



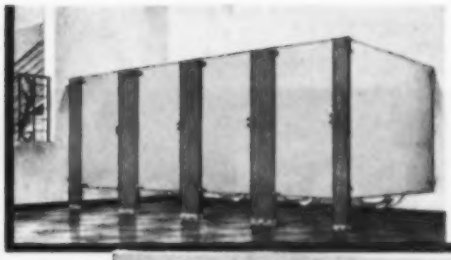
Please notice that the candlepower distribution curve is by Electrical Testing Laboratories, Inc., not The ART METAL Company.

May we send Bulletin 254 which gives complete details? Please write:

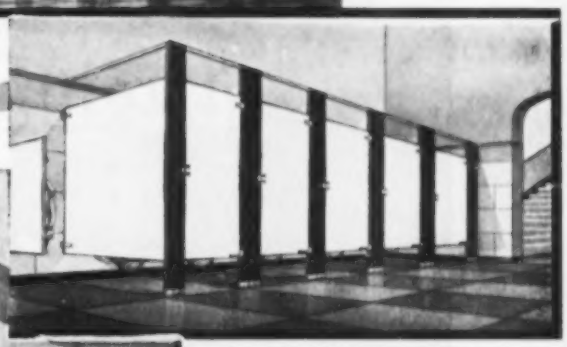
THE ART METAL COMPANY
CLEVELAND 3, OHIO

Manufacturers of Engineered Incandescent Lighting

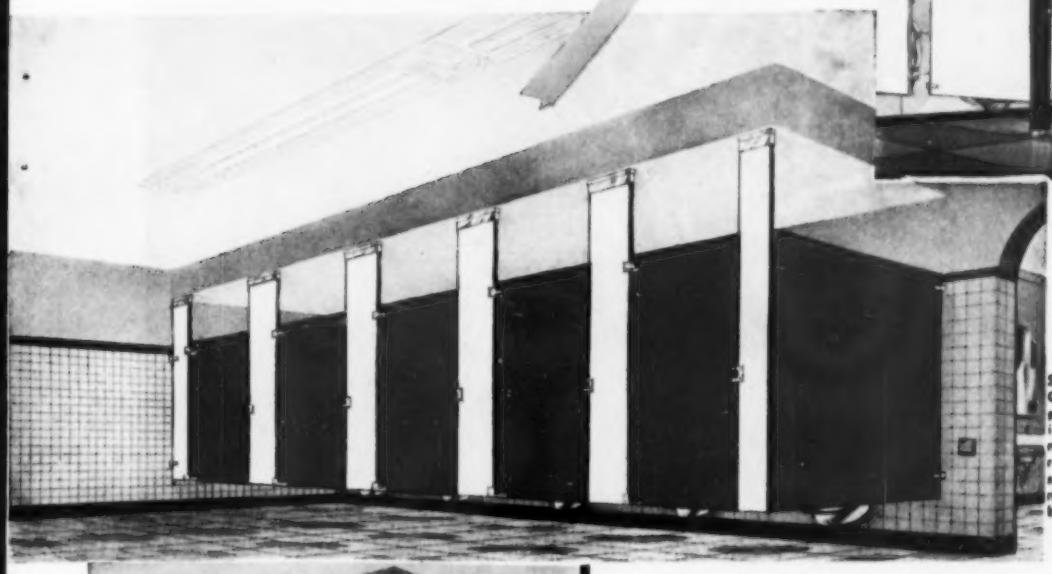
Untimely obsolescence of washrooms usually occurs when and where it is invited . . .



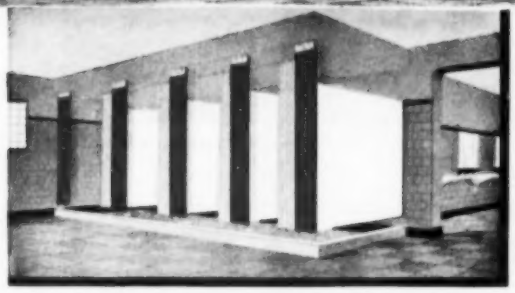
Sanymetal NORMANDIE Type Toilet Compartments endow a rest room environment with dignity and good taste.



Sanymetal ACADEMY Type Toilet Compartments are suitable for conservative but modern washroom environments.



Sanymetal CENTURY Type Ceiling Hung Toilet Compartments offer the utmost in sanitation and provide modern, distinctive rest room environments for schools, institutions, terminals and other public buildings.



Sanymetal CENTURY Type (Ceiling Hung) Shower Stalls of Sanymetal "Porcena" (Vitreous Porcelain on Steel) Partitions and Pilasters, as arranged for a typical club installation. Also available in Sanymetal "Tenac" (synthetic enamel baked-on over Galvanized, Bonderized* Steel).

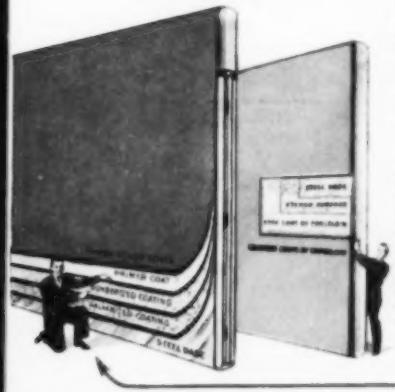
To insure against *untimely obsolescence* consider wall-type plumbing fixtures installed with Sanymetal ceiling-hung toilet compartments.

Sanymetal offers several different types of toilet compartments. Sanymetal also offers and recommends Two Full-Purpose Metal Base Materials which combine colorful attractiveness with long years of service life and effect important day-after-day savings in cleaning and maintenance costs. These Two Full-Purpose Metal Base Materials—Sanymetal "Tenac" (Galvanized, Bonderized** Steel), and Sanymetal "Porcena" (Vitreous Porcelain on Steel), the ageless and fadeless, rustproof material—are described herein. Sanymetal Toilet Compartments are also available in cold rolled steel.

Sanymetal Toilet Compartments and Shower Stalls embody the results of 40 years of specialized skill and experience in making over 1,000,000 toilet compartment and shower stall installations. Ask the Sanymetal representative in your vicinity to demonstrate the worthiness of Sanymetal Toilet Compartments as protection against *untimely obsolescence.*

Sanymetal "PORCENA"
(VITREOUS PORCELAIN ON STEEL)

• The Ageless and Fadeless Material



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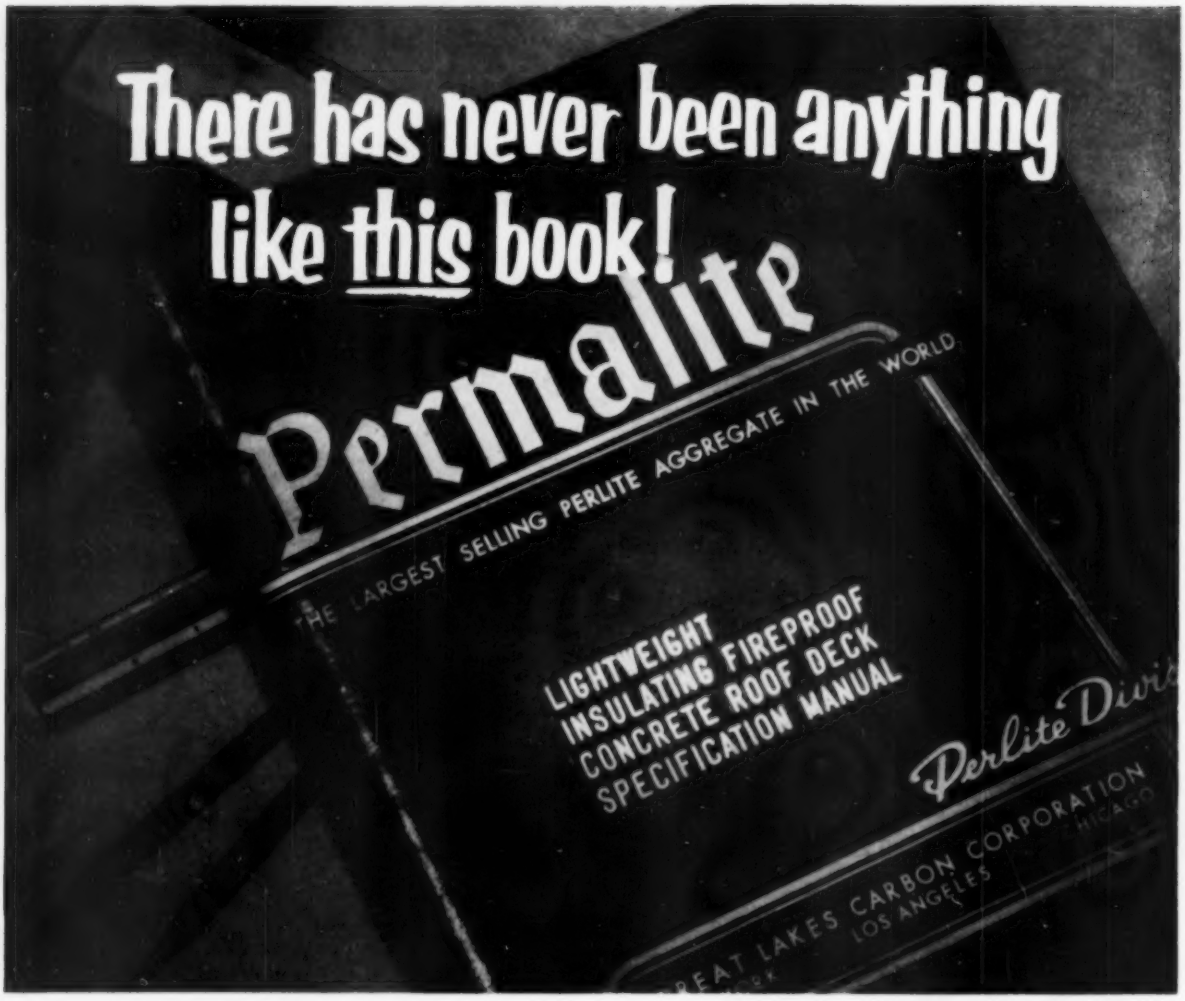
Sanymetal*

*Trade Mark Reg. U. S. Pat. Off.

**Treated with "Bonderite", a product of Parker Rust Proof Company

TOILET COMPARTMENTS SHOWER STALLS AND DRESSING ROOMS



(To be issued June 28, 1954)

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FEATURE	MODINE AIRDITIONER †	CONDITIONER A	CONDITIONER B	CONDITIONER C	CONDITIONER D
Availab'e in 5 types? (Console, concealed, 3 overhead models — finished case, utility cased, unencased)	YES	NO	NO	NO	NO
Number of fan speeds	4	3	3	2	2
Can end panels be removed to facilitate piping?	YES	YES	NO	YES	NO
Is ample space provided for piping?	YES	YES	NO	YES	NO
Is coil easily reversible for right or left-hand piping?	YES	NO	NO	YES	NO
Does design prevent condensate from dripping into fan casing?	YES	NO	NO	YES	YES
Is coil protected from objects dropped thru upper grille?	YES	NO	NO	YES	YES
Are motors lifetime lubricated?	YES	YES	NO	NO	YES
Can power assembly be easily removed?	YES	NO	NO	YES	YES
Is internal wiring done at the factory?	YES	YES	NO	YES	YES
Is front small and easy to remove?	YES	NO	NO	NO	NO
Is offset for toe space provided?	YES	NO	YES	YES	NO
Are two access doors provided?	YES	NO	NO	NO	NO
Are corners square for ease of recessing?	YES	NO	NO	NO	YES
Projection into room when recessed to full depth	6"	Not recessable	7⅓"	8⅓"	6"

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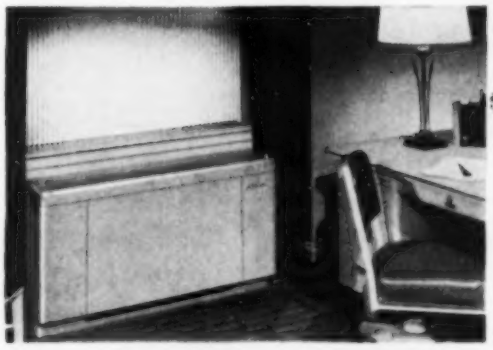

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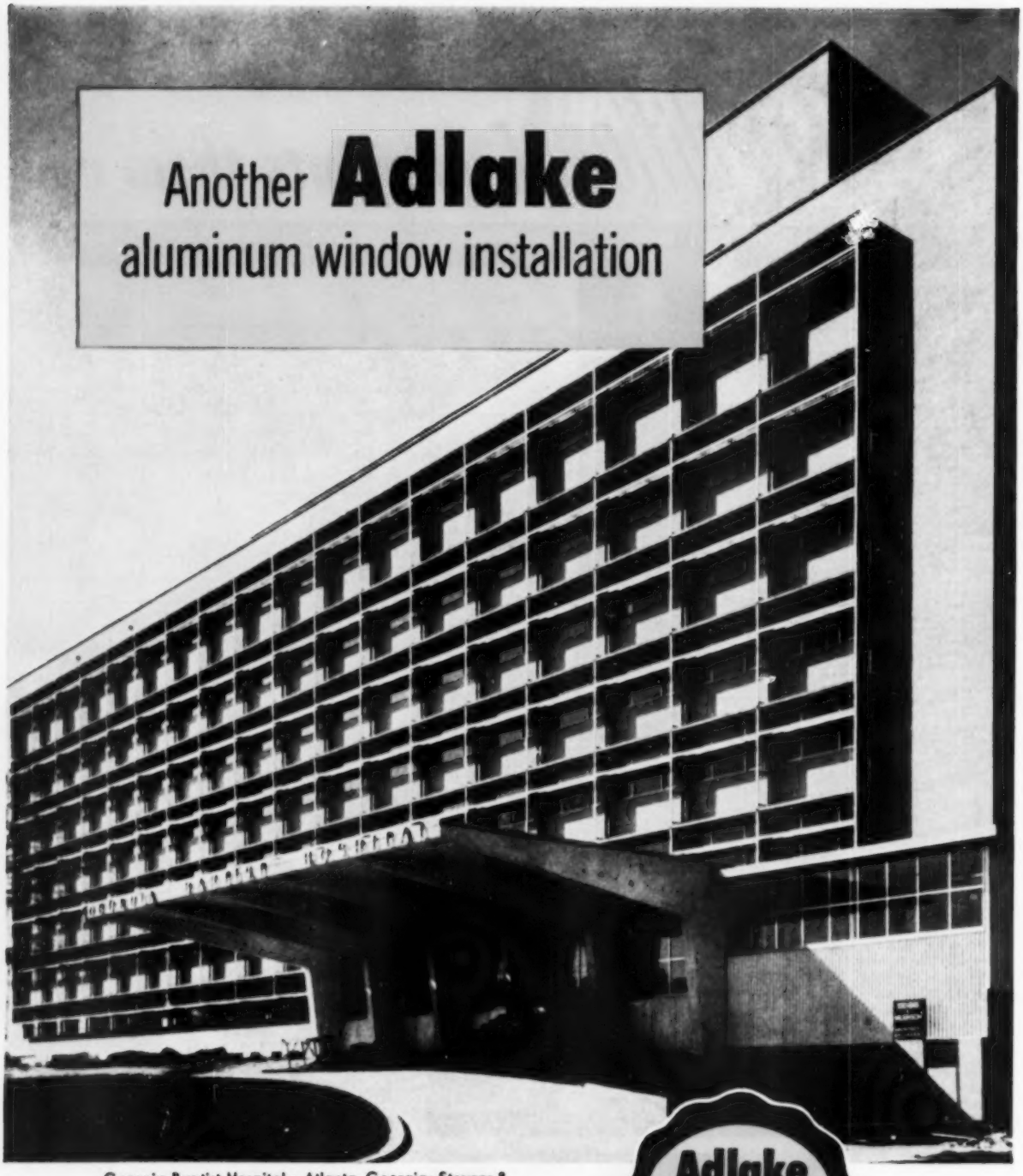

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the architect's files: part 3

by Siegmund Spiegel*

In order to practice his profession in a business-like manner, the architect obviously must make adequate provisions for filing of the "nontechnical" material as well as the "technical." (Filing of the technical material was discussed briefly in previous articles.) Although the amount and type of material actually retained for filing by architects may vary from office to office, there are, of course, certain basic documents which must be kept. Briefly then, the types of files maintained in the "office" part of an average organization will include among others, items falling into the following categories:

Proposed Jobs Files
Job Files
Bookkeeping Items and Their Files
Management Files
"Miscellaneous" Files
Individual Partners' Files
Forms & Supplies

Since these files pertain to distinctly different materials, efficient filing is, of course, facilitated by storing them in separate filing units, to prevent undue delay in locating a certain document. The files, being maintained by the "nontechnical" personnel, are obviously located near the secretarial and bookkeeping staff.

office filing

The following system has been found to work satisfactorily for each of the various categories listed above.

1. Proposed Job Files. Most every office will make proposals for jobs which may take a considerable length of time before they become active (if sometimes at all). There frequently may be a sizable amount of correspondence with the prospective client. There may also be detailed information about the property, proposals for services, etc. Before a project becomes an actual commission, it is kept (in one folder) in the "Proposed Job File". Once the proposed project becomes a job, the file is transferred to the "Job File." Detailed budgeting and other pertinent information may prove useful again for new jobs, even if the ones for which they had been intended originally, do not materialize.

2. Job Files. No matter how small a job, there inevitably will be a certain amount of correspondence and memoranda. While the physical number of folders needed per job file will depend upon the nature of each job, experience has proven that an early separation into individual folders by subjects will make the job file more workable. The proper time for such subdivision can obviously be gaged only by the volume of material for filing at hand.

a. Small Projects. Residences, most alterations, and other small projects may be adequately served by the following folders for each:

Architect's Contract & Billing
Architect's Budget & Production Costs
Bidders' File (Before Construction Contract is awarded; Construction Budget, Bids, etc.)
City Departments (Applications, Objections, Approvals, etc.)
†General Contractor — General Correspondence
†General Contractor—Construction Contract, Requisitions, Certificates of Payment Memoranda to File (e.g., visits to job, etc.)
†Owner—General Correspondence
Planning Program, Notes & Minutes of Meetings (with Owner)
Purchases Made for Owner
Specifications

b. Large Projects. In the case of files for a larger project, though the breakdown will be basically the same as shown under a. above, they will obviously have to undergo a further breakdown, in order to take account of the multitude of separate phases and number of outside firms and agencies who may be involved.

In the case of the larger projects, too, special research work is frequently done on various materials, finishes, appliances, etc. While the job is active and such research and comparative analyses are made, copies are kept in the job file under "Research," each extensive subject having its own subfile (e.g., Soundproofing of Floors, Balconies, Signal Systems, etc.) At the completion of the job these "Research" files are removed and integrated in the "Source Material File" which was discussed in an earlier article.

c. Large Projects with Associate. If a project is executed by a Joint Venture, certain specific files must be added to the multitude of the "normal" job files. Generally these additional files will consist of file headings, such as: general correspondence with Partners, Joint Venture account and charges, Joint Venture agreement, Joint Venture monthly balance sheets, minutes of meeting with Partners, Partners' drawing accounts, and taxes.

3. Bookkeeping Items and Their Files. This material is obviously located near the person in charge of its upkeep. It consists of such items as: checkbook, all books required for the bookkeeping system in use, period payroll summaries, timecards, employe's payroll record (a form from which W-2 Forms and other tax reports are prepared), job number index book, bank statements, cancelled checks, etc. For the most part, these are the official records of the firm's business conduct. They are the ones which are subject to inspection by government and insurance agencies (and to some extent may be subject to audits by private or government clients, should a contract so specify).

4. Management Files. In contrast to the bookkeeping or official records discussed above, the management files deal primarily with the analyses of business conduct, and are frequently consulted not only for the purpose of analyzing active jobs, but also with a view to preparing budgets for future work. In addition, of course, they are concerned with the overall administrative picture of the office. "Management" records will, among others, generally consist of the following types of material:

* *Architect; Office Manager for Mayer & Whittlesey, Architects, New York, N. Y.*

† *Files identified by a dagger are filed alphabetically using respective person's name.*
If outside consultants are used, e.g., structural, mechanical, or others, each will have a separate folder, alphabetically integrated into the over-all folders for the job.

Billing Record
Financial Prognosis and Payment Schedule
Production Schedules
Production Costs
Overhead Analyses
Detailed Job Proposals
Professional Standards, Fee Schedules
Consulting Engineers' Fee Schedules
Personnel Vacation Schedule
Individual Employes' Records (showing roughly such information as: name; address; date of employment; salaries and increase; absences due to illness, and others; date of leaving; reason for leaving; remarks, such as qualifications shown while in the office. This type of file is not only useful for purposes of checking the man's record while he is with the firm, but can be referred to easily when potential future employers or government agencies ask for references.)

5. "Miscellaneous" Files. All material which is not concerned with specific architectural jobs and which does not fall into other categories discussed above, but which is essential nevertheless to the conduct of an office, is preferably filed in a distinctly separate filing unit. An alphabetic breakdown may show material on the following subjects:
(Where ever headings are not followed by specific explanations, "General Correspondence" is implied for each, unless the name of a file itself explains the subject matter.)
AIA, National
AIA, Local Chapter
Applications for Positions
Architectural Magazines (by individual name)
Bank
Bills (Individual folders for firms where there are frequent transactions, e.g., Blueprint Company, Stationery Firm, Travel Agency, Art Supply Co., Telephone Co., Rent, etc. All infrequent other "general" bills are best filed in a common folder arranged by year.)
Charitable Contributions
Commendations
Correspondence (with individuals)
Correspondence, General
Employes (correspondence with and about)
Employment Agencies
Filing Cabinets (index of all)
Furniture Purchases
Insurances (type, policy, bills)
Membership Files (firm and partners)
"Names" File (individual folders for various groups of specialists who may be contacted if need should arise, e.g., Planners, various consultants, contractors and other specialists)
NCARB (questionnaires, qualifications)
Partnership Files
Publicity (newspaper clipping, etc.)
Qualifications (completed questionnaires)
Staff Memos
Subscriptions
Taxes (separate folder for each category)

If in the operation of the office's activities there is a need for contacting certain individuals not connected with the firm, and/or certain organizations, the list of which may be voluminous, depending on the office, a card index file for each person and organization giving pertinent information, may prove to be time saving.

A dated "tickler" file, in which important business follow-up items are stored and which is checked daily by the secretary who brings the "due" item to the attention of the individual concerned, may prevent laxness or possibly complete overlooking of important matters. Due to these items being filed centrally rather than being noted in an individual's diary only, they can be given proper attention even if the person concerned should be absent at the time at which action should be taken.

6. Forms and Supplies. Just as stationery and office supplies are checked periodically for quantities at hand, it is advisable and will prove time-saving to keep an ample supply of the various forms available which may be needed from time to time. These forms would include AIA forms of Agreements (the types generally used by the individual firm), Certificate of Payment forms, Employe's forms, payroll sheets, etc.

Ultimate Disposition of Files and Records.

Every office will have to judge periodically which filed material has outlived its usefulness. Hardly any office will have such unlimited storage space as to be able to hold on to all material indefinitely. Basically, the legal statute of limitations will govern which part of the firm's official records may be destroyed. The statute of limitations, however, will not be the guide as far as "experience" and actual job records are concerned. Especially where architectural jobs are involved, information contained in a job file may be of extreme value should the building be altered years after the original job has been completed.

Disposition of files and records may possibly be accomplished by doing the following (obviously subject to each firm's individual needs and experiences):

Job Files. As a job is completed, special "research" items are extracted and entered in "Source Material"; Production Cost information is removed, summarized, and kept with "Management" records; remaining files are condensed by disposing of all but essential correspondence, contracts, records. Care should be taken not to destroy correspondence and records which may become important should legal action be taken in years to come by the owner, contractor, or other person. A separate "dead" file as distinguished from the "active" is best suitable for keeping such remaining material. Dead files need, of course, no longer be located in the work office proper, but an index should be kept of where these files are stored.

Business Records. Tax, payroll, timecards, and other business records must obviously be kept until the statute of limitation has been achieved. Depending on what further use an office may have for such documents, they may then be destroyed.

"Miscellaneous" Files. Except for legal documents and records, the majority of these files will become out-dated as time goes by. A periodic cleanout will deplete the volume and will make the file more useful.

Bernard Tomson **it's the law**

When is a dispute a proper subject for arbitration under the general conditions (Articles 39 and 40 of the standard form building contract issued by the American Institute of Architects)? This was the issue before the Appellate Division of New York in the *Matter of Board of Education Union Free School District No. 3, Town of Islip, Suffolk County, New York.*

A General Contractor had entered into a contract with the Board of Education for general construction work for alterations and additions to the East Islip School. The Contractor was required, under the contract, to do certain excavation work, including the excavation for footings and foundations, as well as to perform certain concrete work, including the construction of the footings and foundations.

Article 6 of said contract provided in part as follows:

"The Contract Documents—The General Conditions of the Contract, the Specifications and the Drawings, together with this agreement, form the contract, and they are as fully a part of the contract as if hereto attached or herein repeated."

The general instructions and information with regard to the excavations for footings and foundations and for the construction of the footings and foundations were contained in the specifications furnished the General Contractor. Drawing No. 3 gave detailed dimensions and measurements for the depth of the excavation for the footings and foundations. The drawing specified that the excavations for the footings and foundations were to be carried to a depth of 1'-10½".

A notation on Drawing No. 1 read as follows:

"All footings to bear on undisturbed soil of minimum two ton per square foot bearing capacity."

Pursuant to the provisions of the specifications, the Contractor notified the Architect when the footing excavation was carried to the 1'-10½" level. After an inspection, the Architect disapproved of the soil conditions at the 1'-10½" level because of roots in the soil and directed the Contractor to carry the footings down so that they rested on 2 ton per square foot bearing soil.

The Contractor claimed an extra for the additional work and was notified by the Architect that the matter of compensation would be adjudicated at a later time. When no further remuneration was forthcoming, the Contractor filed a demand for arbitration, which proceedings were stayed on motion of the Board of Education and appealed to the Appellate Division, after a lower court held that this was a proper case for arbitration.

On appeal the Board maintained that there was no bona fide dispute within the meaning of the contract. The Board cited as controlling the note to Drawing No. 1, as well as other sections, one of which provided as follows:

"Concrete and cement work footings and foundations: Pour only on undisturbed earth. Where ground has been disturbed, carry footings down lower than as shown on the drawings, at no additional cost to the owner."

Under the Board's theory, therefore, the Contractor could not be excused from his contract because of unforeseen difficulty, soil conditions, or unusual or unexpected expenses and, consequently, was not entitled to extra compensation. Thus, as there was no bona fide dispute within the meaning of the contract, the Contractor had no right to arbitration.

The Contractor contended that there was a bona fide dispute between the parties as to the construction of the contract provisions and rejected the Board's reference to Drawing 3, which showed the 1'-10½" dimensions as "only typical," as in no way binding. As the contractor stated in its brief:

"A typical detail in the building industry does not signify something indefinite like the 'typical woman.' A typical architectural detail establishes the exact size, shape, quantities, etc., for specially located work and for all other similar work."

This, claimed the Contractor, was clearly a controversy subject to arbitration under the arbitration agreement.

The Appellate Division reviewed the AIA arbitration provisions incorporated in the contract, which provided, in part:

" 'The Architect shall . . . make decisions on all claims . . . relating to the execution and progress of the work on the interpretation of the Contract Documents'; that '. . . all the architect's decisions are subject to arbitration'; and that 'the decision of the arbitrators shall be a condition precedent to any right of legal action. . . .' "

The Court determined that the dispute as to whether or not certain work constituted an extra was properly a subject for arbitration by the Architect. In conclusion, the Court declared:

"The language of the arbitration provisions of the contract is sufficiently broad to express an intention of the parties to submit a dispute such as the one herein to arbitration."

It is to be noted that the merits of the controversy were not considered by the Court, which merely passed upon the presence or absence of a bona fide arbitrable dispute. This case represents the latest development in judicial construction and application of one of the AIA arbitration provisions. See June 1954 P/A, where I considered the same Court's interpretation of the Architect's role as arbiter.

It is also important to note that this is not a discussion of the arbitration clauses in the "Architect-Client" AIA form. The court decisions only emphasize the importance of amending that particular arbitration clause so as to insure that an arbitration tribunal, and not a court, will decide disputes between an Architect and his Client. *(See March 1949 P/A.)*

home planning exhibit in a bank

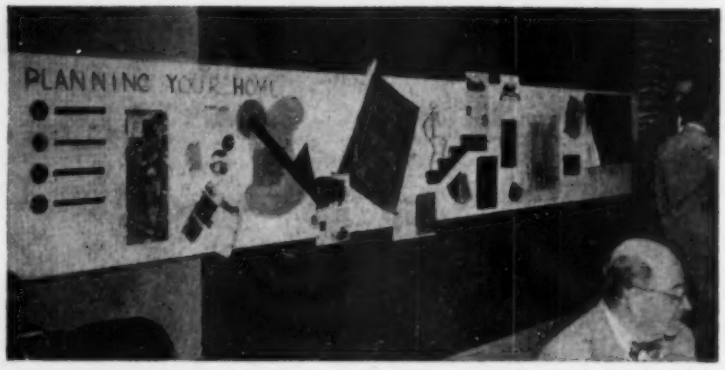
Last month we documented an extremely ambitious—and expensive—exhibit on architecture, which is traveling around the country. Putting your best foot forward through the medium of an exhibit need not be this ambitious, however, as this month's case study shows.

The benefits of an "exhibition" are fairly obvious: it reaches the general public; the fact that someone has thought well enough of the subject to give it hanging space in a public place endows it with a certain prestige. It is dignified, acceptable promotion; and this being so, the exhibitor has a responsibility to make his presentation as objective as possible. The show should teach the public something in a general sense about the operation of an architect, and the importance of good planning. It is then public education from which every architect in the community will benefit, along with the person whose work is shown.

Norman M. Giller, Miami Beach, Florida, architect, recently held a "one-man show" on the subject of home planning, in the lobby of the Washington Federal Savings and Loan Association in Miami Beach. The bank was anxious to educate its clients in proper planning. The "public" was an ideal one—out-of-town visitors even came from other places, as word of it spread.

As the photographs show, the exhibit is a running story, based, Giller says, on simple, direct, and "animated" answers to "the type of question which is usually asked me by persons about to build their own homes." The theme, *Proper Planning —A Happy Home*, is divided into four parts: the relation of the home to the community; the design of space; preliminary discussions and the architect's job; bidding, contracting, construction.

The exhibit was received with enthusiasm: the architect, the bank president (Jack Gordon, who is the youngest president of a Federal Savings and Loan Association in the United States), and the public all seem to have benefited. This sort of public relations activity takes a little effort and thoughtful planning.



Space off bank lobby is set aside for exhibition (top) *which is a direct and simple "argument" illustrated with actual working drawings and specifications* (center photo). *Giller explains an architect's services to potential home owners* (right).

religion and culture

This special issue of P/A, continuing the year's series of studies of our changing living habits and their effects on contemporary architecture, is built around a selection of those buildings that reflect, in one way or another, man's aspirations toward religion, toward cultural advancement, and toward personal betterment. In today's increasingly mechanized world, numerous pressures serve to heighten the need for this category of architectural development.

1. With most of us wresting a livelihood from a highly paced competitive economic system, some provision for serenity and contemplation is a necessity in order to maintain a rational balance.

2. With the emergence of destructive weapons of incredible potency and the threat of general obliteration, there is a tendency to re-evaluate the goals of life, to seek lasting values and spiritual security, and to return to a sober search for order and purpose in existence.

3. With daily tensions and stepped-up noise spreading from coast to coast, the healing quiet of retreats and the informality of the casual meeting place are sought as antidotes.

Thus, serving a continuing social need and actually essential to peace of mind and soul are buildings such as those shown in this issue: churches and temples; a civic center; a school of art, music, and dramatics; and a social center.

The efforts to establish a convincing contemporary design expression of the architecture for religion and cultural pursuits are of particular interest. Tradition and ritual requirements have tended to restrict the design of churches and synagogues to rather narrow limits. Nonetheless, as a study of following pages will reveal, some architects are contriving to use modern materials and modern techniques in producing the desired atmosphere of mystery and quiet devotion. Libraries that would have been almost certainly conceived as pompous, gloomy landmarks earlier in this century, now are opened with many windows to provide optimum reading conditions and the interior circulation is planned to expedite, rather than frustrate, the functioning of the building. P/A Editors find it encouraging that the Phoenix Civic Center is evidence of at least one city's choice of a co-ordinated group of public buildings, designed in human scale and set in rich landscaping.

In contrast to more utilitarian and mundane categories of building, these structures are distinguished by a warmth and a character of expression that seem to place personal values above all others.

churches and temples

Synagogue

location	Burlington, Vermont
architects	Freeman-French-Freeman
mechanical engineers	Jaros, Baum & Bolles
landscape architect	Elizabeth Dickerman Jones
interior decorator	Harlene R. Horn
engraved glass windows	Benjamin C. Stein, Jr.
general contractor	Hall Brothers Company

The Congregation Ohavi Zedek in Burlington, Vermont, numbering about 700 members, has existed for 200 years. Its need for more space and additional facilities led to this building, located on one of Burlington's pleasant residential streets.

For regular services, the temple seats 175 persons. On High Holydays, folding doors at rear of the sanctuary can be opened to the auditorium, thereby enlarging the capacity to 700 persons. On other occasions, the auditorium serves as a recreation and social room. Four Hebrew School classrooms, the library, lounge, meeting room, and offices flank the temple and auditorium in a peripheral arrangement.

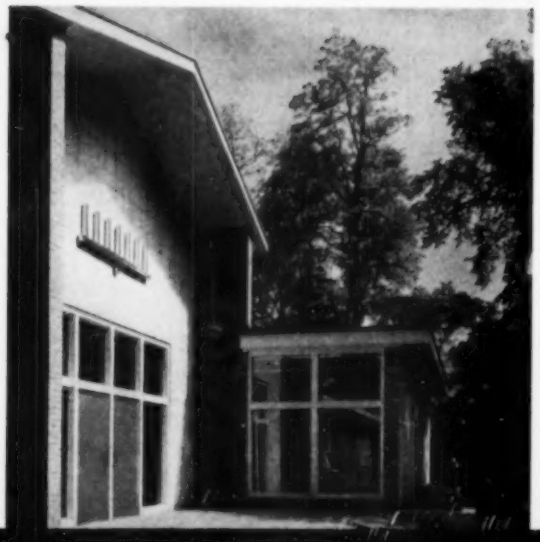
The structure is composed of cavity bearing walls with wood-frame roof. Temple and auditorium roofing consists of horizontally braced Belgian trusses, from which the choir loft is hung by means of steel rods.

The architects felt that since the religious service is primarily a joyous one, the interior wall colors should be bright and lively, and combine with the natural brick and light-colored native birch, used throughout the interior. The windows in the temple are of clear glass, to facilitate prayer reading. Nevertheless, for decorative purposes they have been engraved with abstract symbolic designs in the tradition of Jewish art.

Photos: Richard Garrison

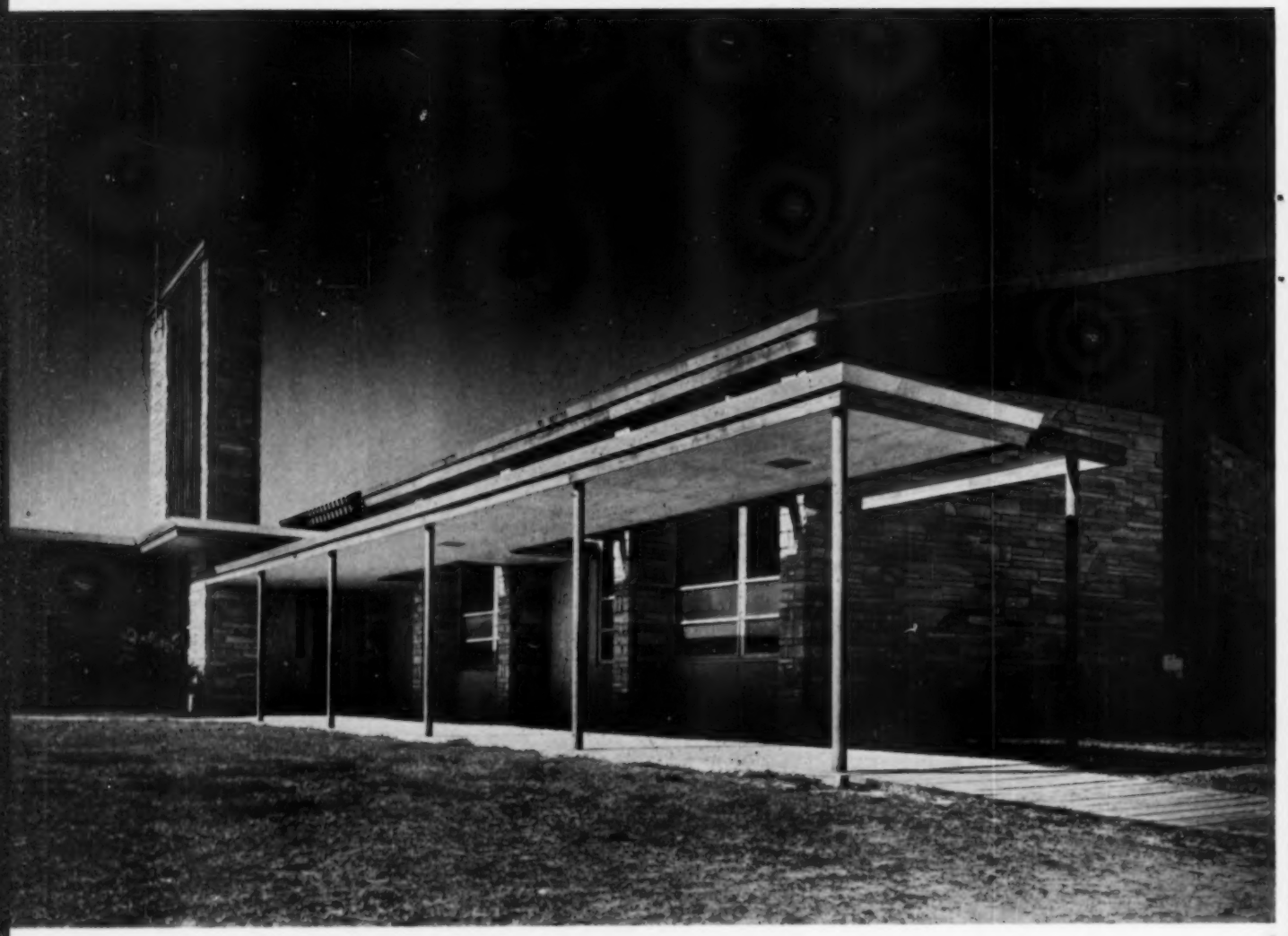
View toward bema or sanctuary (left). *"By carrying the ceiling line through from the interior to the exterior, and interrupting the band of glass with the walls of the bema" the architects feel that "the roof in the temple is given the visual aspect of floating, supported only by the bema which, since it contains the ark, psychologically expresses the strength of the law."*

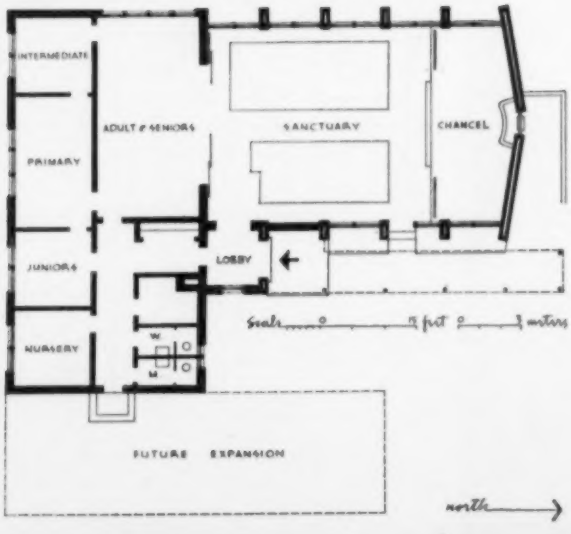
Choir loft and folding partition at rear of temple (below).



location	Wrightsville Beach, North Carolina
architect	Leslie N. Boney
general contractor	J. Fred Murray

Chapel





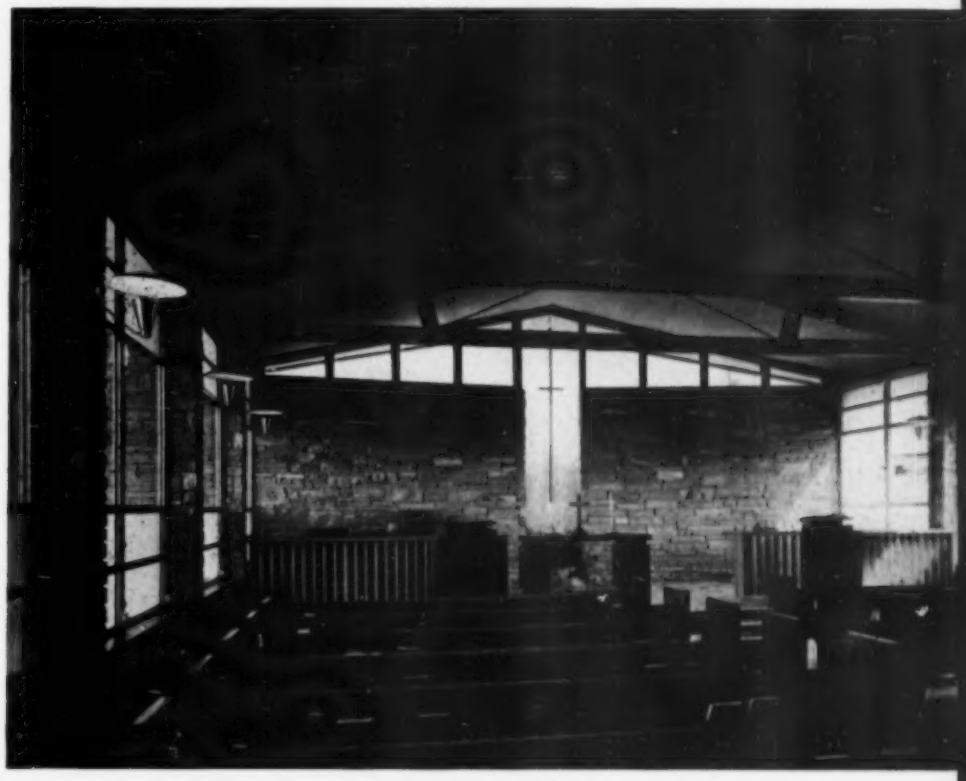
"The Little Chapel on the Boardwalk" was designed to seat about 150 persons. Since its opening three years ago, actual attendance has varied from a year-round congregation of 125 up to 300 persons in the summer. Sliding doors at the rear of the sanctuary make the adult-senior meeting room available as an overflow area.

As attendance is largest during the summer, special thought has been devoted to making the chapel comfortable during the hot months. Interior colors are turquoise and yellow, with blue glass at the front of the chancel making a cool, pleasant, and open atmosphere. The windows in the chapel are awning type, to provide maximum ventilation. Projected aluminum sash has been used in the Sunday school area.

The architect's comment on the little chapel: "While the building does depart from standard church architecture, the traditional symbols are still present in new materials and forms."

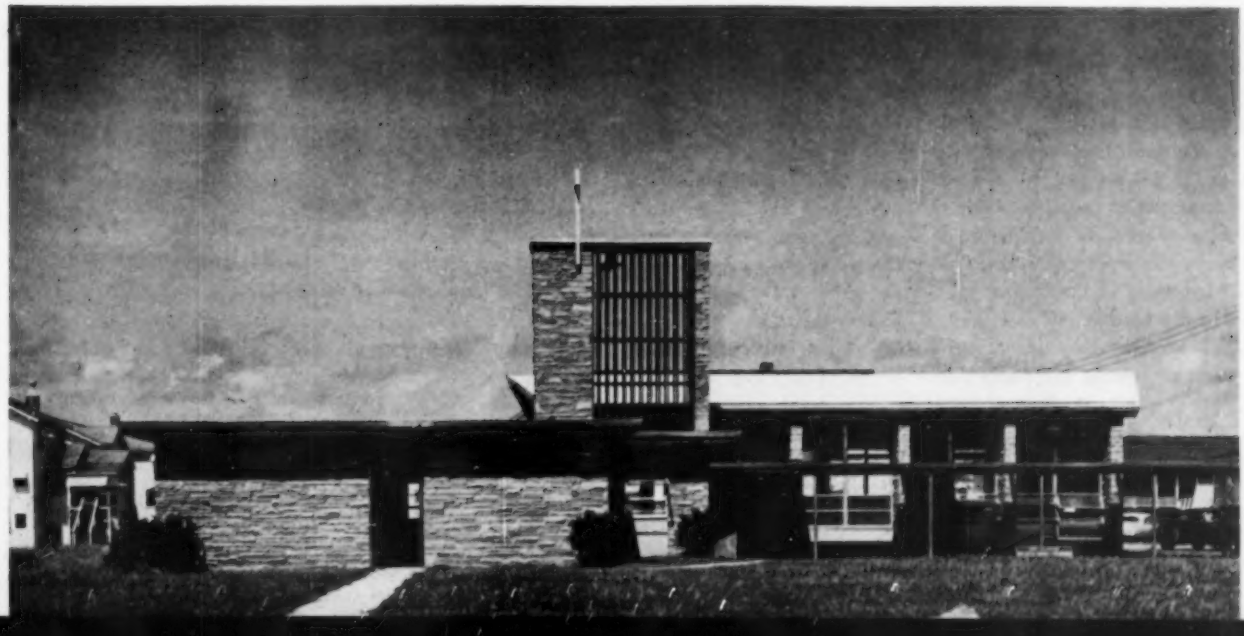
A covered walk leads to the main entrance of the chapel (acrosspage).

Exterior and interior walls are crab orchard stone veneer (right). *Window at the front of the chancel is hammered, blue, glare-reducing glass.* Photos: Joseph W. Molitor



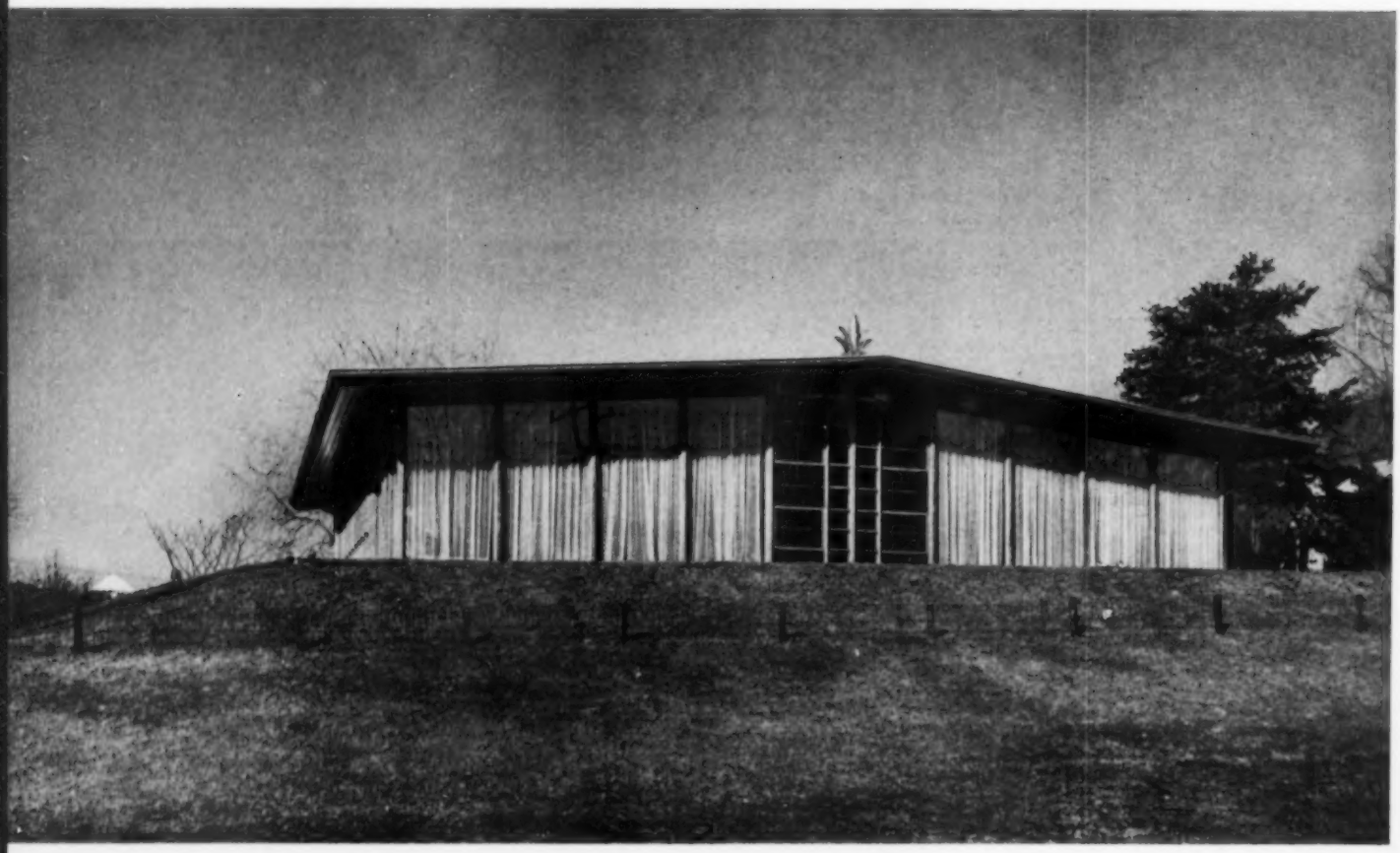
Chapel as seen from the east (below). *Direct entrance to Sunday school is at left.*

Photo: G. E. Kidder Smith



Temple

location	Washington, D. C.
architect	Walter D. Byrd
consulting engineer	Robert Hardesty
general contractors	Muth Brothers



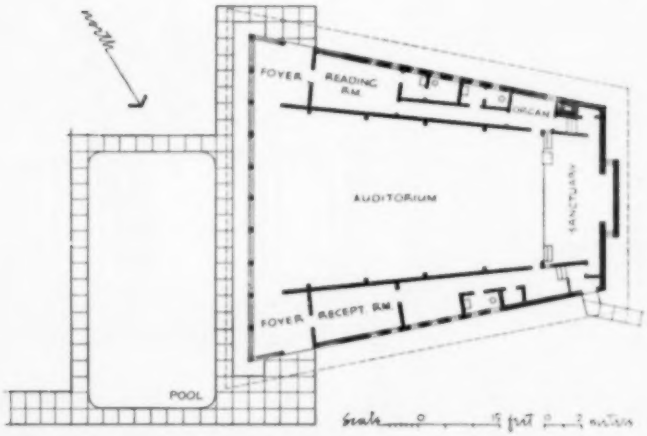
One approaches the "Golden Lotus Temple" from the lower sidewalk by a flight of stairs. The façade of the building (above) *is of ¼" polished plate glass fitted between 8" x 8" fir posts with chamfered corners.* Photo: Richard Garrison

This building, situated on a terrace 12 feet above the street level, accommodates an audience of 210 persons. It was erected for a nonsectarian group dedicated to the teaching of religious philosophy. In consonance with the form of worship, the plan and execution of the "Self-Realization Fellowship Church" are simple.

A 5-in. concrete slab, under which forced warm-air heating ducts have been laid, forms the foundation for the building. The side and rear walls are faced with pastel-colored slump brick. Laminated-wood arches were substituted for steel trusses, when a steel shortage threatened to delay construction. Although not quite as strong as steel, wood offered the advantage of less sag under high temperatures. Moreover, the wood arches, left in their natural state, form a graceful pattern under the temple roof. Sand-finished plaster surfaces the interior wall and the ceiling between the arches. Aluminum foil was used in the ceiling for thermal insulation, while draperies at sides of the altar insulate acoustically.

The reflecting pool before this simple and well-proportioned building heightens the atmosphere of peace and quiet, and provides an ideal setting for meditation.

Entrance to auditorium (right) *is through foyers at both sides of church. Seats are folding type. Floor is waxed and polished asphalt tile.* Photo: Richard Garrison

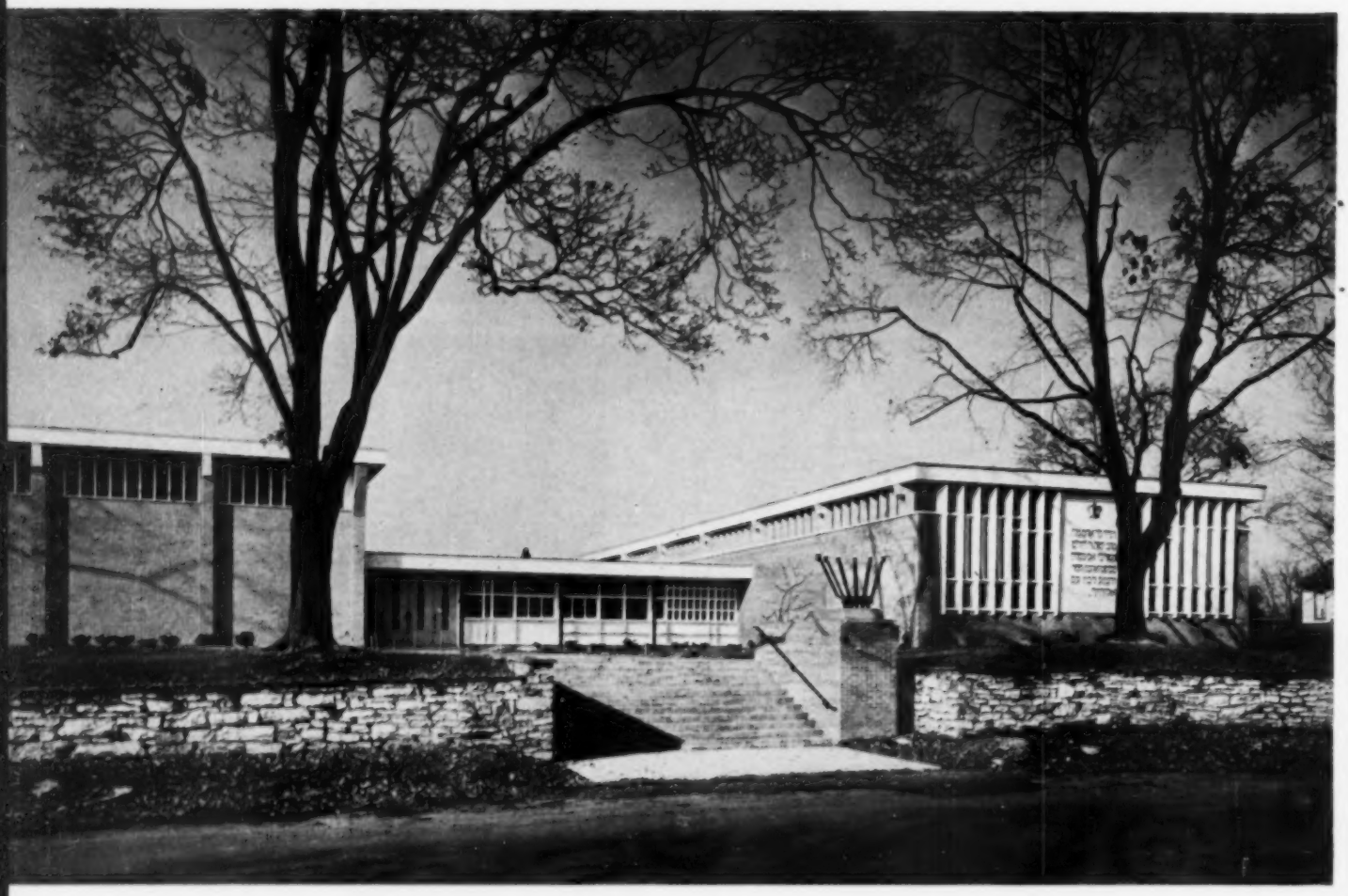


Reflecting pool (above) *is before the temple. Glass façade is mirrored in pool* (left).

Photo: Robert C. Lautman

Synagogue

location	Lebanon, Pennsylvania
architect	Percival Goodman
structural engineers	Fraioli-Blum-Yesselman
mechanical engineer	Charles R. Bardos
lighting consultant	M. F. Segalas
general contractors	M. L. Haldeman & Son



The Congregation Beth Israel, long established in this Pennsylvania Dutch town, required not only a new sanctuary, but educational, social, and athletic facilities as well. A playground owned by the temple provided the site.

Principal areas of the synagogue are:

1. A sanctuary, seating 200 persons, for the Sabbath services.

2. A lecture and social hall with a small stage, seating 300 persons. This area can be opened to form part of the sanctuary. In this way, a social event can be attended by 500 persons, or, by reversing the seats, a religious ceremony can be held for the same number.

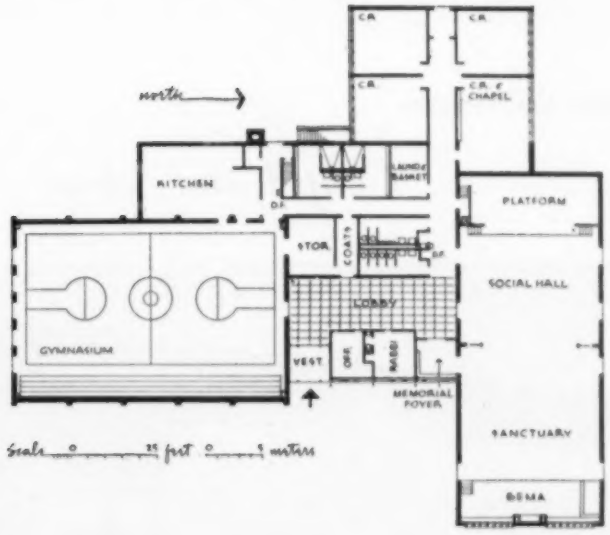
3. A gymnasium, suitable also for large dinners, dances, etc. A kitchen adjoins.

4. A chapel, used for board room and library.

5. Classrooms for religious instruction.

The structural system employs brick cavity walls. The floor is concrete slab on grade. Sanctuary, social hall, and gymnasium have exposed wood beams. The roof framing elsewhere is standard wood joists and plaster ceilings with 2 in. of rigid insulation and tar-and-gravel surfacing.

The predominating colors in the sanctuary are the blue-green of the window and carpet, the pink of the brick walls, ochre for the curtain, mahogany and white furniture.



"Red brick and white paint plus direct structural expression," states Architect Goodman, "seem natural to this landscape" (across-page).

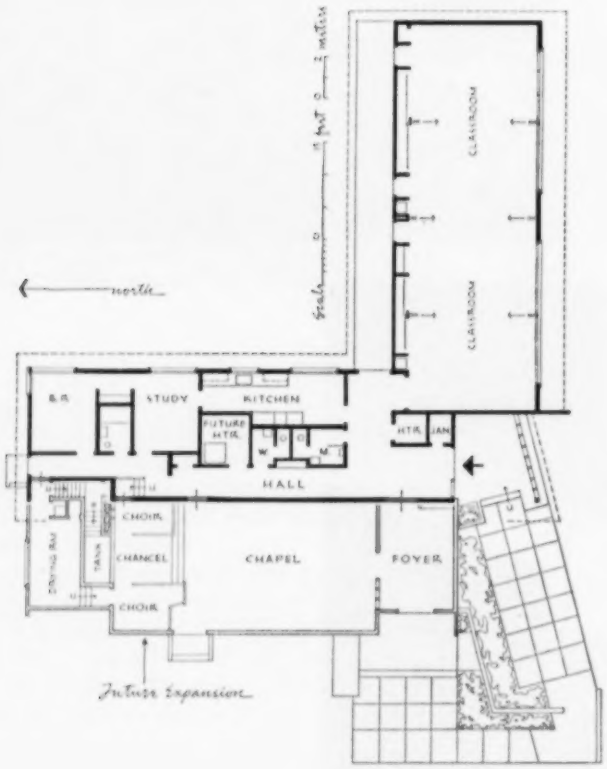
Roof framing over gymnasium (right) *consists of laminated wood girders, wood purlins, and planking, all exposed. Clear plastic has been used in clerestory windows, thus avoiding the use of window guard screens.*

Sanctuary window (below) *is of heat-resistant glass, frosted to reduce glare. The pews have reversible backs (like old-fashioned trolley cars), so that seats may also be faced toward stage of social hall. Coffered ceiling provides recesses for lighting fixtures and insures good acoustics.*

Photos: Alexandre Georges

Chapel and School

location	San Mateo, California
architect	Worley K. Wong
associate	John Carden Campbell
general contractors	Joel Johnson & Son

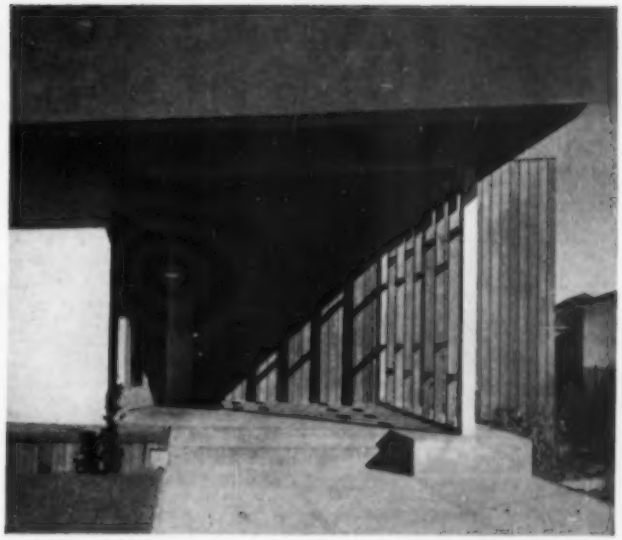


As the combined plan illustrates, this building constitutes the school and service wings of an eventual complex that will serve as chapel, school, and community center for Chinese-American families. A local Baptist church launched the project and supplied about two thirds of the funds. For worship, the minister now uses a temporary dais at one end of the classroom area, a space that may be a single room for groups or divided into four classrooms by folding partitions. Other elements of flexibility include folding chairs and tables and commodious storage closets.

Chinese-American families make a point of seeing that their children both read and speak their ancestral language; hence, youngsters attend language classes here daily from 5 p. m. to 8 p. m. Parents who need tutoring in English also attend classes. The minister instructs both groups, as well as attending to his regular church duties.

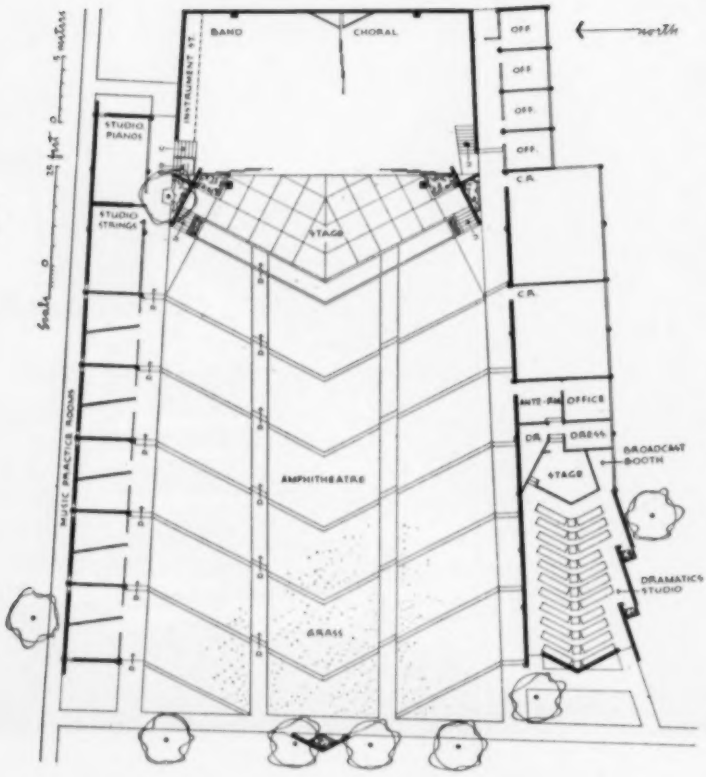
A simple, wood-frame structure, the building has exterior walls of plaster and redwood; interior surfaces, of plaster on metal lath. Acoustic tile is used on ceilings of classroom areas. Sash are steel architectural projected; glass is crystal or double strength. A gas furnace provides forced warm air heat.

Photos: Sonya Noskowiak



Fine Arts Building

location	Central State College, Edmond, Oklahoma
architects	Conner & Pojezny
general contractors	J. W. Skaggs Construction Co.



Central State's U-shaped Fine Arts Building houses the college's music and dramatics departments. Provision has been made for classrooms, individual music practice, band and choral rehearsals, dramatic studio and little theater, broadcasting facilities and outdoor concerts.

The attendant problem in acoustics was solved by a well-thought-out design and a good selection of materials.

The structure is turned within itself and away from adjacent buildings, in order to reduce disturbance to other activities. Music practice and academic sections are in separate wings of the U. While sounds from the practice rooms are directed toward an open athletic field to the north, classrooms and little theater are oriented toward the south. As a unique design feature, the sloping court has been developed as an amphitheater. The wings enclose the sides of the open air gallery, while the center unit serves as a stage, with cantilevered roof projecting sound forward. Inside, acoustical material has been sprayed onto metal-lath or directly on concrete slab ceilings.

Reinforced-concrete frame and slab form the structure throughout. The breaks in the roof level of the wings are used as rigid-frame beams carrying one-way slabs. The center unit rests on four columns, with two-way rigid frames supporting the roof beam as well as the cantilevered slab over the stage. Most interior partitions are light-weight concrete block.

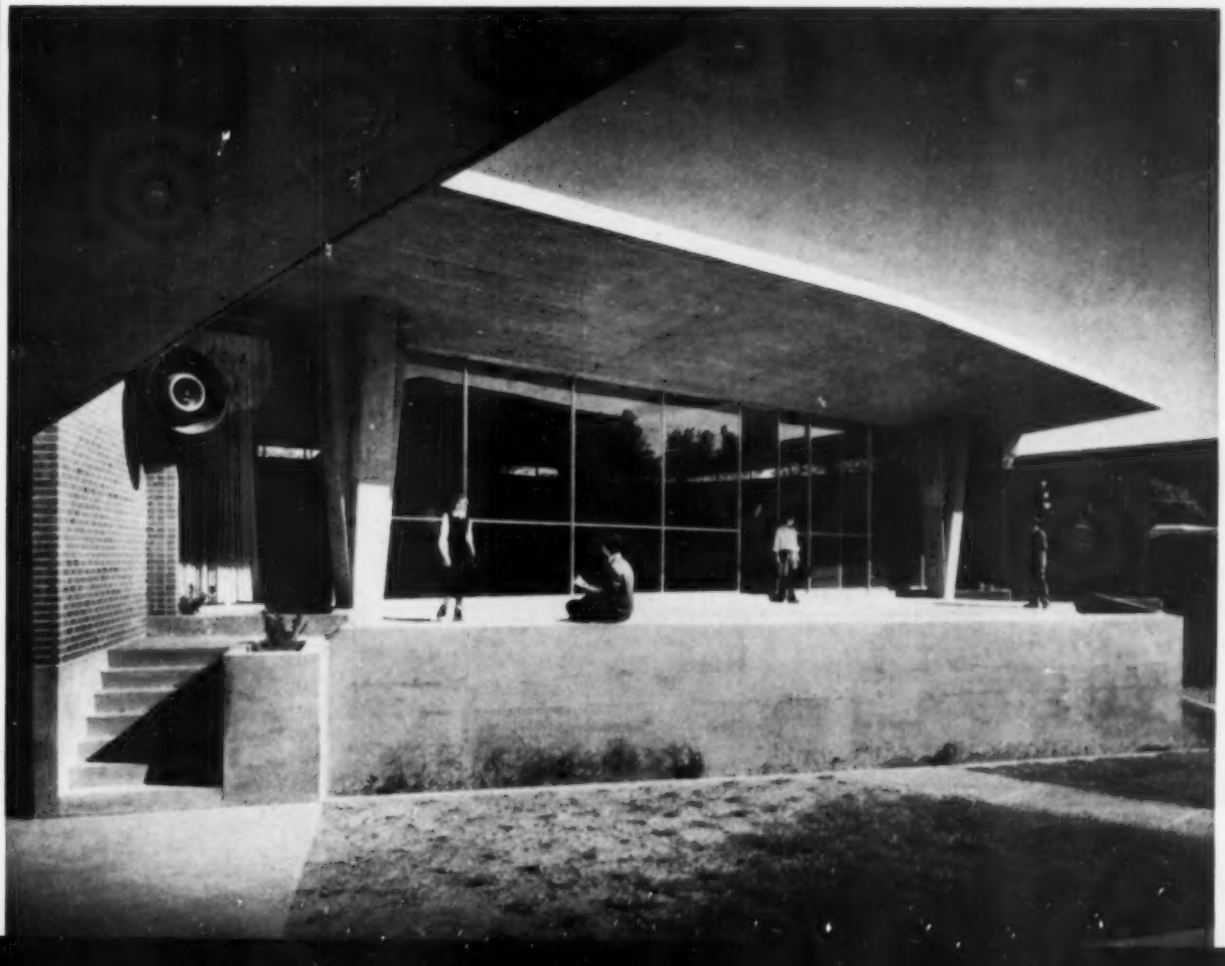
Classrooms are lighted by low-brightness fluorescent lamps overhead; otherwise lighting is incandescent.

Amphitheater (acrosspage) *is flanked by music practice rooms on the north, classrooms and theater on the south. Large sliding-glass panels facing the courtyard may be opened to form a stage.*

Little theater in foreground (right) *seats about 100 persons and is equipped with broadcasting facilities.*

When not in use as a stage (below), *this structure can be divided into two separate rehearsal rooms for band and choral groups. Under the stage are dressing rooms, storage and repair shops.*

Photos: Julius Shulman



fine arts building

A typical practice room (below right). *Angled walls eliminate flutter very effectively.*

Sloped sounding boards, as well as broken ceiling pattern, provide excellent acoustics in band and choral rehearsal rooms (below left).

View toward practice rooms (below), *with choral room in foreground.*

civic center

An impressive array of design talent was employed in the development of the Civic Center being built in Phoenix, Arizona. Initially, Ernest Kump, of San Francisco, California, made an analysis of the needs for the Center. Alden B. Dow, of Midland, Michigan, received the commission to develop these needs into a co-ordinated, full-block scheme—the stage shown in the model photo. In working out the detail of the first two completed units—the Public Library (foreground) and the Little Theater (diagonally opposite corner of site)—Dow continued to serve as the associate designer. Working drawings, however, were made for the Library by Lescher & Mahoney and H. H. Green, of Phoenix; and for the Little Theater by Harold Ekman, also of Phoenix. Future construction—currently in the process of design—will include a Museum and Work Shop for the Civic Art Center.

All of the units will be connected eventually by covered walks and landscaped terraces. And all buildings—rare if not unique in the development of U. S. civic centers—will be consistent in design, developed in human scale, and richly enhanced with integrated planting.

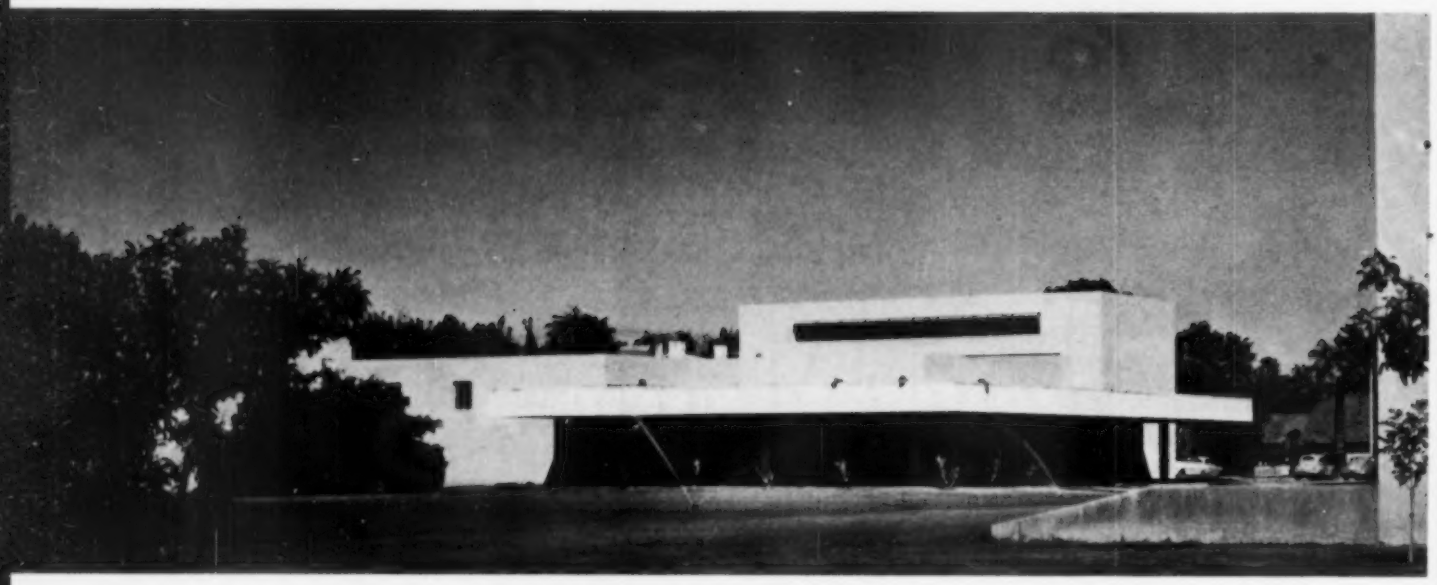
"In approaching the design," Dow comments, "the first problem seemed to be the handling of parking. As you will note . . . it occurs on all four sides of the building site and is separated from the streets by a park strip." This is evident at the lower left-hand corner of the model photo, a point near a street intersection. Notice how paired sidewalks, separated by lawn, approach the building at an angle; the white areas at either side are parking spaces. This same handling occurs at all four corners of the site. A central area, that will be largely enclosed by the buildings and covered walks, will be developed as a garden for display of sculpture and a pleasant retreat from the bustle of the city.

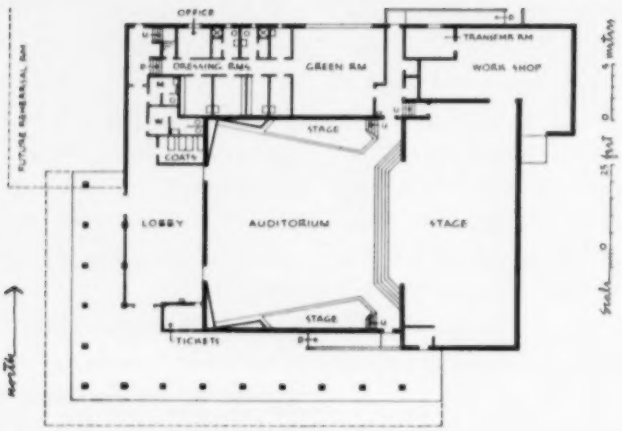
Dow feels that the buildings are "compatible" with the site, the ground, the planting, the automobiles, the crowds of people, and the individual. "This, I believe, is the important thing," he comments. But, he goes on to ask, "Is an architect ever satisfied?"

He particularly regrets that budgetary considerations made it necessary to use plaster, rather than copper, as the surfacing of the building friezes. Highlighting this sort of economy as a familiar problem that architects face when doing public buildings, he notes that "enclosed space is always the first . . . consideration. Character seems to be the last, and as a result 90 percent of the buildings built today should never have been built." Though this hardly applies to the Phoenix buildings, Dow feels that the economies that were necessary did somewhat diminish the buildings' character. And, in his opinion, "character probably contributes as much to the welfare of a building and a community as the service provided by the building itself."

Civic Center: Little Theater

location	Phoenix, Arizona
architect	Harold Ekman
associate designer	Alden B. Dow
engineer	W. T. Hamlyn
general contractors	Buros & Sons



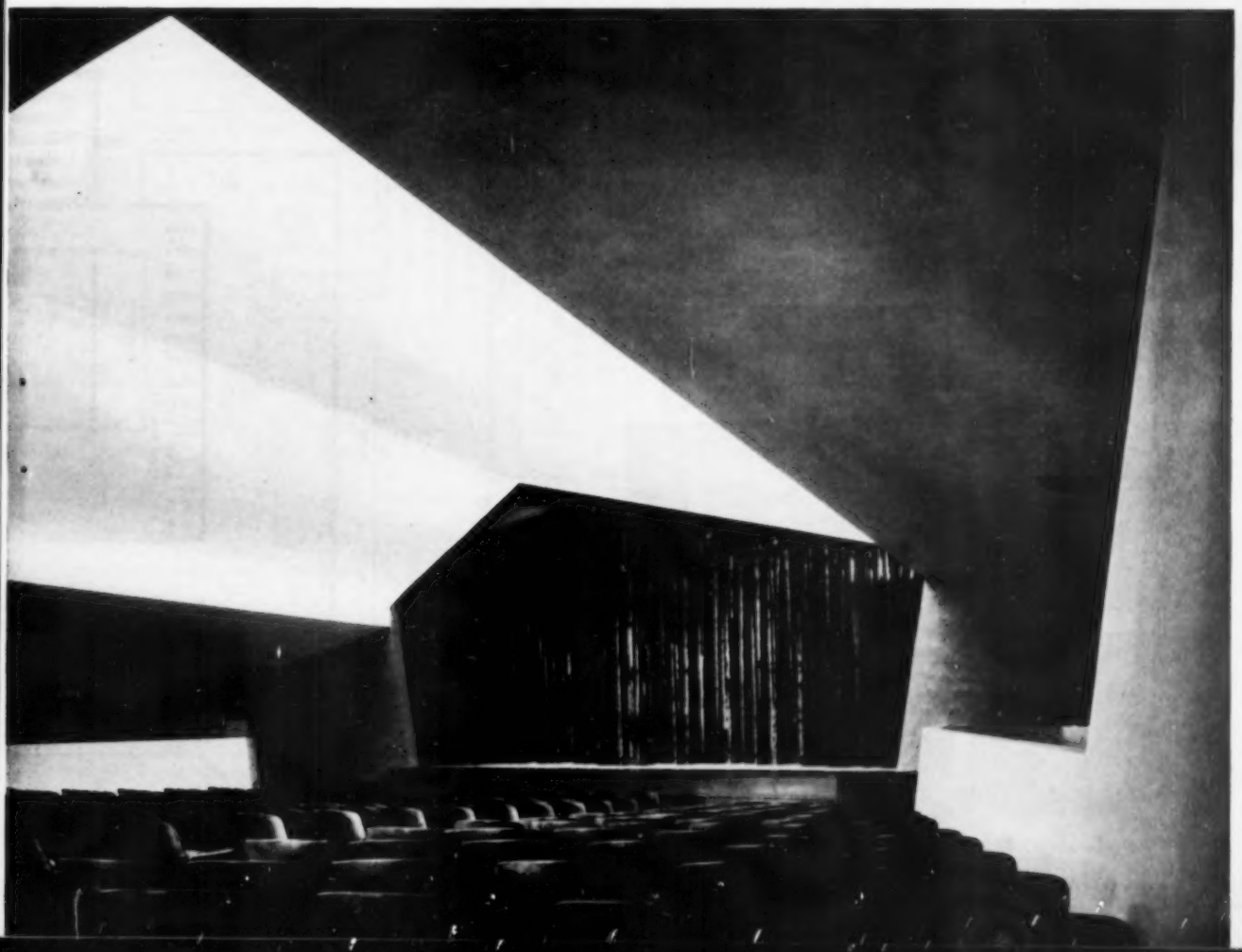


First of the Civic Center units to be built was the Little Theater, viewed (*above*) from a corner of the Public Library. The building was financed by the local Theater Guild by sale of bonds. The corner entrance is bordered by a deep, protected porch or *ramada* which offers ample audience-gathering space both before curtain time and between the acts. Unusual in plan are the two small side stages, which allow the play partially to surround the audience when this device seems desirable.

The theater has walls of brick, concrete floors, and steel-framed roof with slab of lightweight aggregate. Painted cement plaster is the exterior surfacing, and gypsum plaster, the interior. Perlite acoustical plaster on ceilings control sound levels. A gas-fired duct heater with automatic controls heats the building; a package air conditioner tempers the air at other times of the year.

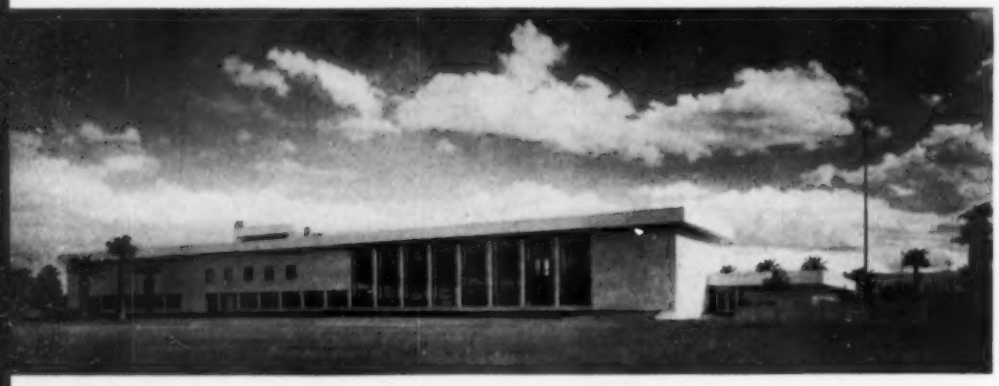
Photos: Stuart Weiner

The bold banding of the specially designed concrete blocks used to enclose the building columns establishes a step-down design motif and unit of scale. This detail also appears in the Library and will act as an element of design co-ordination throughout the entire Civic Center development.

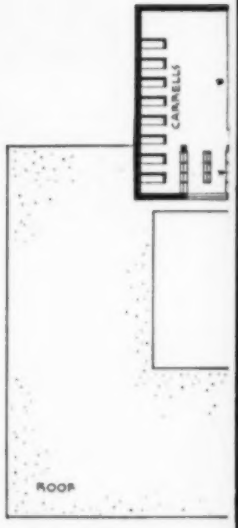


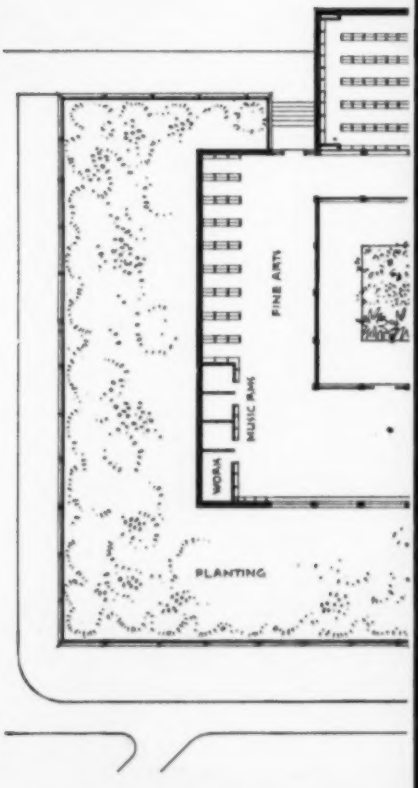
Civic Center: Library

Size and shape of the small panes that occur at both sides of large window areas co-ordinate with lines of special prefabricated blocks that surface columns.



location	Phoenix, Arizona
architects-engineers	Lescher & Mahoney
associate architect	H. H. Green
associate designer	Alden B. Dow
library consultant	Alfred Morton Githens
general contractors	T.G.K. Construction Co.

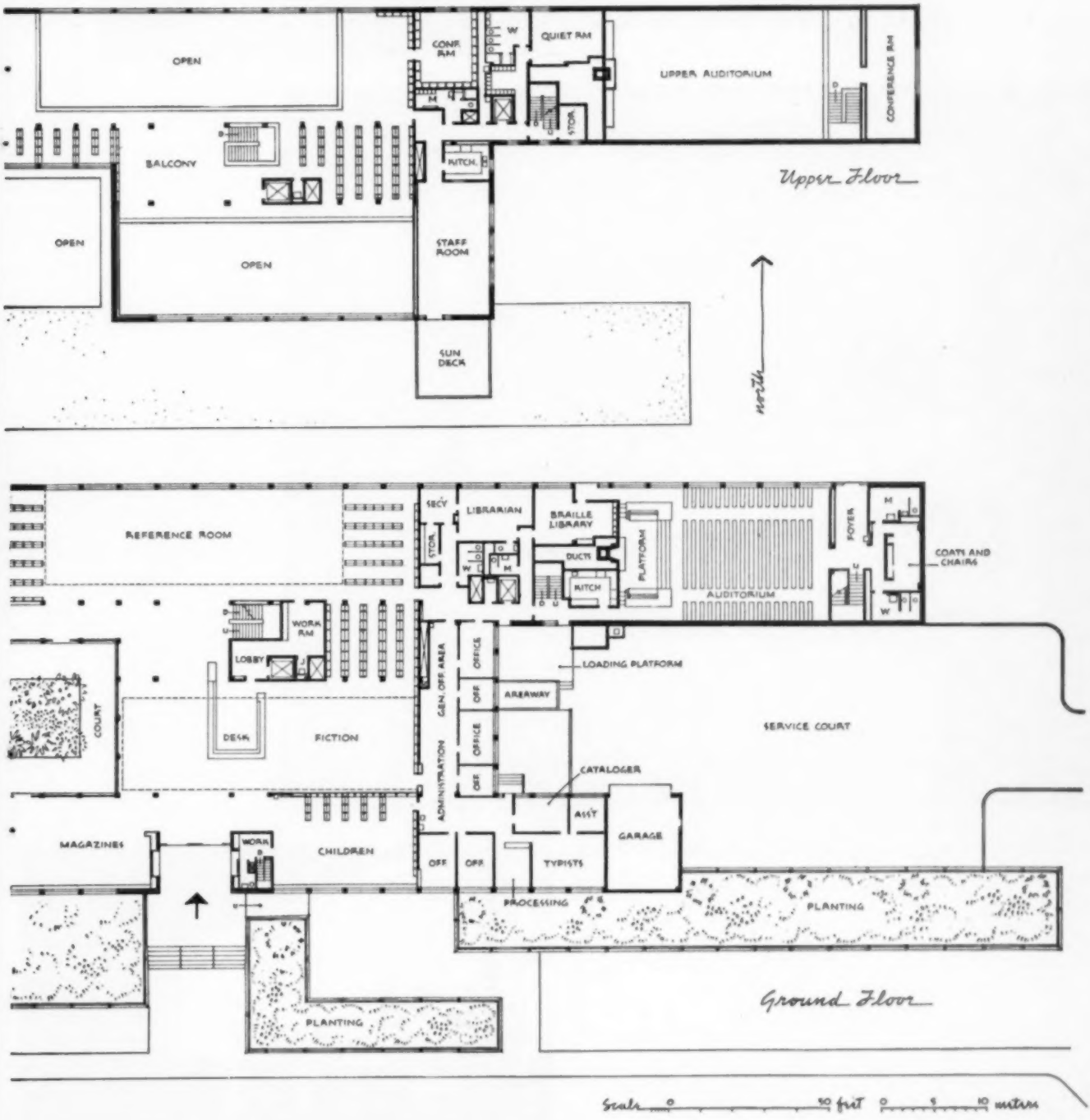




The Phoenix Public Library, built by the City, occupies the entire south front of the Center site. Raised on a platform six steps above sidewalk level and with walled gardens at the front and the west end, the long low building with its strong horizontal design emphasis anticipates the quiet atmosphere within.

In addition to the extraordinary amenities provided in the upper floors shown here (various rooms opening to landscaped courtyards; huge windows to overlook the future sculpture garden), there are two lower levels—a basement and basement mezzanine. Stack space for 300,000 volumes is provided (beneath the entry-catalog-fiction-administration area). Also on the basement level are the mechanical room and a workshop.

In effect, the main public area, both on the entrance side and in the reference room, is a great, two-story-high hall spanned by a central bridge, on which are special stacks and carrels.



civic center: library

From the main lobby (right), *one enters the tall, main-control and catalog room* (below), *with the fiction shelves and comfortable seating in the background.*

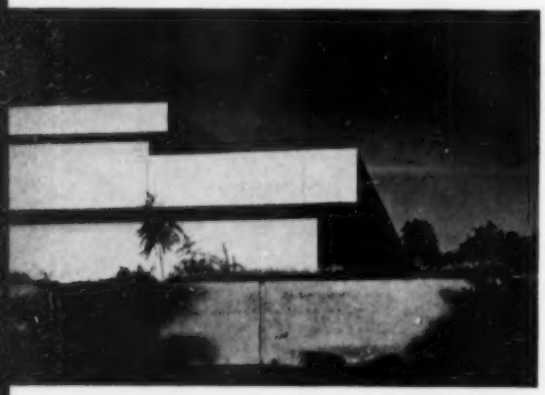
At the west end of the floor, the fine-arts room, a gallery, the magazine room, and catalog area surround an open, landscaped courtyard (bottom).

Looking down from the mezzanine balcony or bridge to the main reference room. The tall north windows overlook the center of the site, at present a lawn, later to become a sculpture-display garden.

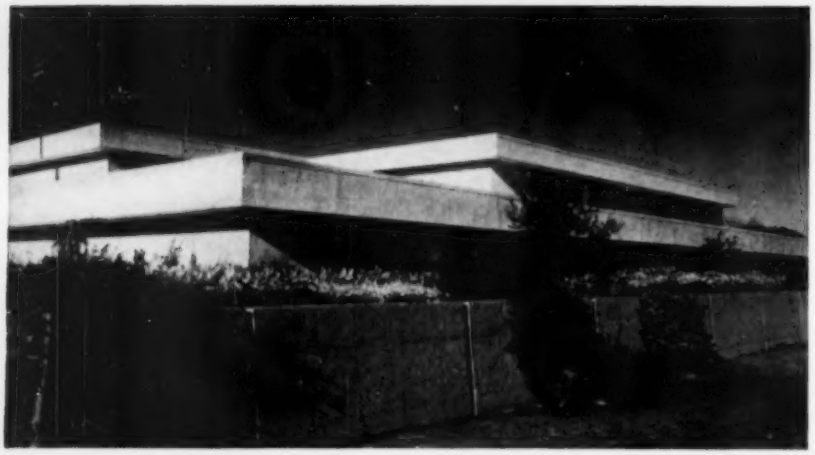
Materials & Methods

construction

Foundation, floors, walls, roof: reinforced-concrete foundation and floors, reinforcing steel—Kaiser Steel Corporation; reinforced-concrete and steel frame, steel—United States Steel Corporation and Bethlehem Steel Company, reinforcing steel—Kaiser Steel Corporation; brick walls; steel-truss roof, steel—United States Steel Corporation and Bethlehem Steel Company. **Wall surfacing:** stucco; plaster—United States Gypsum Company; cement—National Gypsum Company, Inc., Best Brothers Division. **Floor surfacing:** rubber tile—Fremont Rubber Company; asphalt tile—The Flintkote Company, Tile-Tex Division. **Ceiling surfacing:** acoustical tile—The Celotex Corporation. **Roof surfacing:** built-up roofing—Johns-Manville; fill—Zonolite Company; steel deck—Airtherm Manufacturing Company. **Waterproofing and dampproofing:** membrane glass-fiber fabric—Twinsburg-Miller Corporation. **Insulation:** mineral-wool insulation—Rock Wool Insulation Company. **Partitions:** movable-steel partitions—E. F. Hauserman Company; ceiling-hung toilet partitions—Henry Weis Manufacturing Company, Inc. **Windows:** steel sash—Truscon Steel Company; double-strength and plate glass—Libbey-Owens-Ford Glass Company. **Doors:** flush wood interior doors; rolling-steel doors—Kinnear Manufacturing Company of California; glass entrance doors—Libbey-Owens-Ford Glass Company; folding doors—New Castle Products. **Hardware:** aluminum lock sets, door closers—The American Hardware Company, P. & F. Corbin Division; floor hinges—Oscar C. Rixson Company; door hinges—The Stanley Works; rolling door hardware—Grant Pulley & Hardware Company. **Paint and stain:** Mathews Paint Company.



As landscaping develops, the smooth planes of the pink stucco walls will increasingly come into their own as backgrounds for planting and shadow patterns.



equipment

Kitchen: range—Chambers Corporation; cabinets—Avco Manufacturing Corporation, Crosley Division. **Auditorium system:** Radio Corporation of America. **Elevators:** cabs—The W. S. Tyler Company. **Lighting fixtures:** reading areas: high ceiling: recessed incandescents—Pittsburgh Reflector Company; low ceiling; cross-baffled troffers, slimline lamps—Day-Brite Lighting, Inc.; lobby: recessed reflector lamps—Marvin Manufacturing Company; auditorium; recessed downlights—Gotham Lighting Corporation; corridors: diffusing globes (pan-type)—Appleman Art Glass Works; basement: incandescents with prismatic glass—Holophane Company, Inc. **Electrical distribution:** switchboard, motor control center, circuit breakers—Westinghouse Electric Corporation; wiring—Rome Cable Corporation; rigid galvanized conduit—General Electric Company; switches, receptacles—Bryant Electric Company. **Plumbing and sanitation:** tubs, lavatories, water closets—American Radiator & Standard Sanitary Corporation; toilet seats—C. F. Church Manufacturing Company; water heater—General Water Heater Corporation; city water-supply system; flush valves—Imperial Brass Manufacturing Company. **Heating:** hot-water system; boiler—L. J. Mueller Furnace Company; natural gas—Arizona Public Service Company; pneumatic controls—Minneapolis-Honeywell Regulator Company. **Air conditioning:** refrigeration-type unit, compressor—Carrier Corporation; Freon 12 refrigerant—E. I. du Pont de Nemours & Co. (Inc.); wall grills—Titus Manufacturing Company; ceiling diffusers—Air Devices, Inc.; blowers—American Blower Corporation; pneumatic controls—Minneapolis-Honeywell Regulator Company; cooling coils—Young Radiator Company; filters, automatic ventilators—American Air Filter Company, Inc., Herman Nelson Division.

University Library

location	Bradley University, Peoria, Illinois
architects-engineers	Gregg & Briggs
consulting engineer	S. Alan Baird
general contractors	V. Jobst & Sons

university library

Bradley University's new library not only serves the campus, but also provides Peoria with a research center for the general public, business, and industry.

Campus and street entrances are on the second of three stories, with the main study area and the Wykoff Room, for leisurely browsing, directly accessible from the foyer. Through the foyer and stair hall all principal sections of the library can be reached without disturbing readers.

On the top floor, the reading area is flanked by seminar rooms; while a film projection room and listening booths are provided on the ground floor. A sunken terrace for outdoor reading adjoins the building on the north. Onto this terrace face the reading sections of all three floors, thus taking advantage of maximum north daylight and the quiet and pleasant atmosphere prevailing on this side.

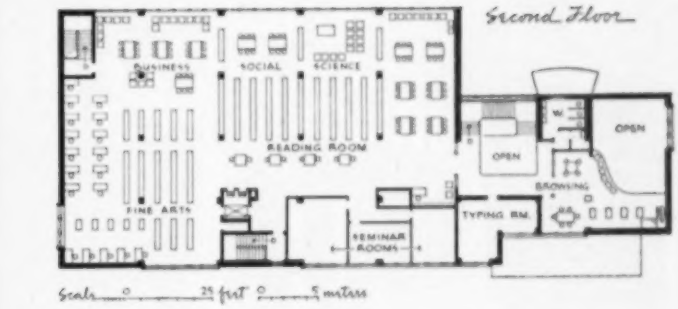
The uniform modular construction used throughout the building is based on the sizes of stacks, carrels (individual study booths), and approved aisle spacing. Thus the floor space can be rearranged as requirements change. Fluorescent lights and air diffusers for this completely air-conditioned building also are placed within this modular pattern.

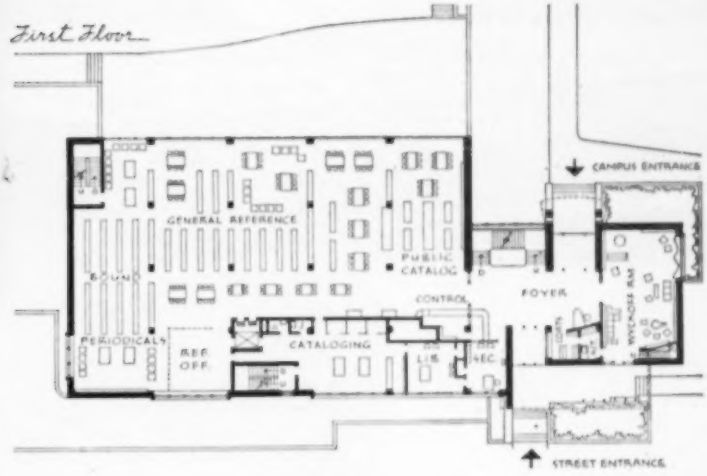
Hung fluorescent lights instead of flush fixtures help to brighten the ceiling. Some incandescent lights are provided for certain special rooms and for decorative purposes. The structural frame consists of steel joists with concrete floor slab, brick and tile walls. Roofing includes poured gypsum slab on steel purlins, 1¼" insulation, tar, and gravel. The exterior is faced with cream-colored brick. Inside, the public areas are a combination of dark gray granite and blond oak panels. Terra cotta and green predominate as wall colors, along with light gray floor tiles. Ceilings are white acoustical tile.

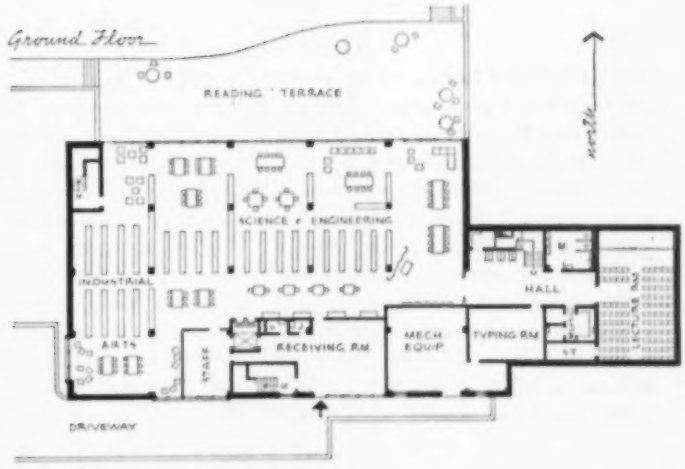
Typical reading room (right) *overlooks terrace. North face of library* (acrosspage top) *showing windows of main reading rooms and entrance from campus.* Photos: Hedrich-Blessing

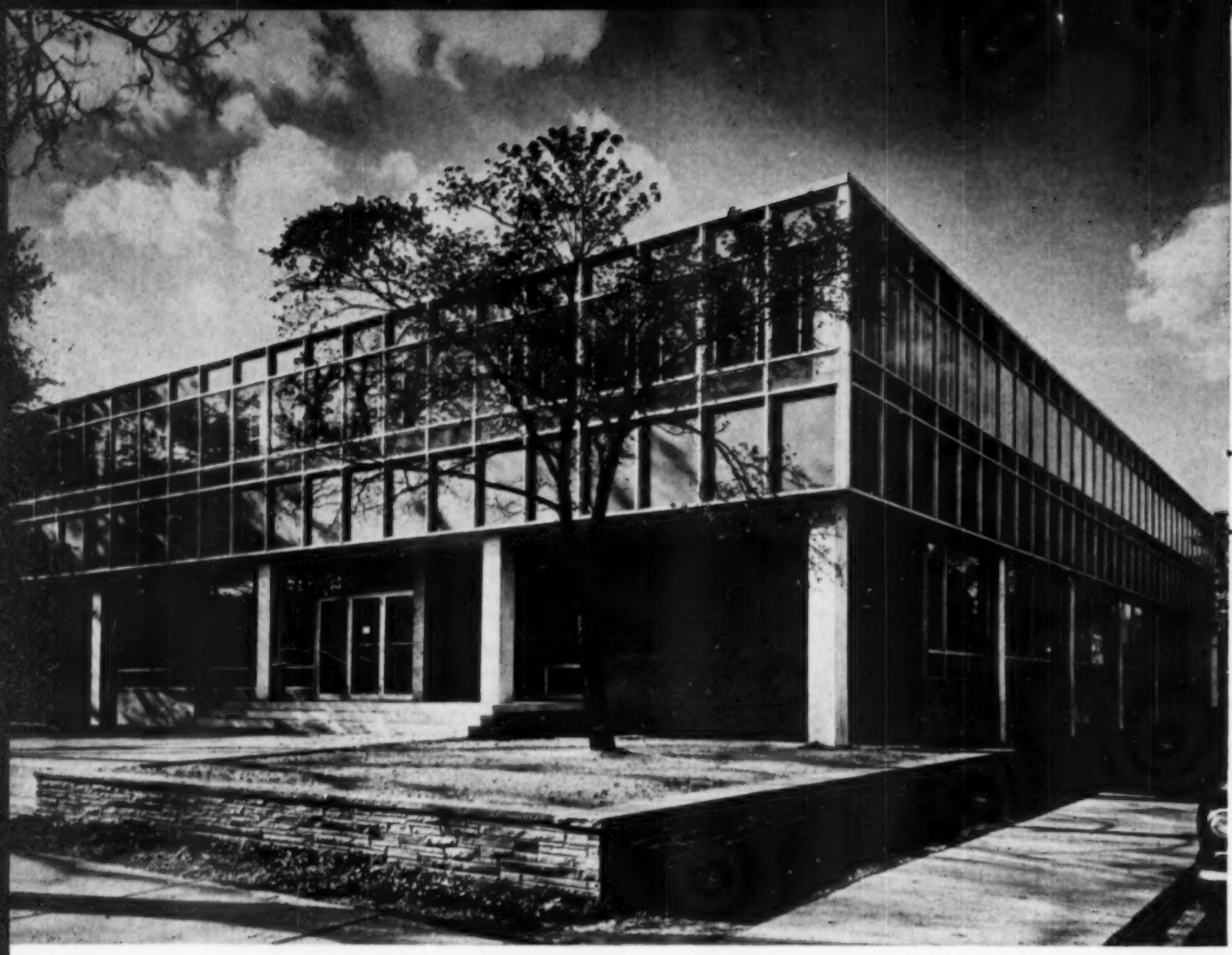
Public and campus entrances lead into central lobby (above). *Doors to browsing room (at left).*

Main stairway connects the three floor levels (acrosspage bottom) *on the north side of the building.*







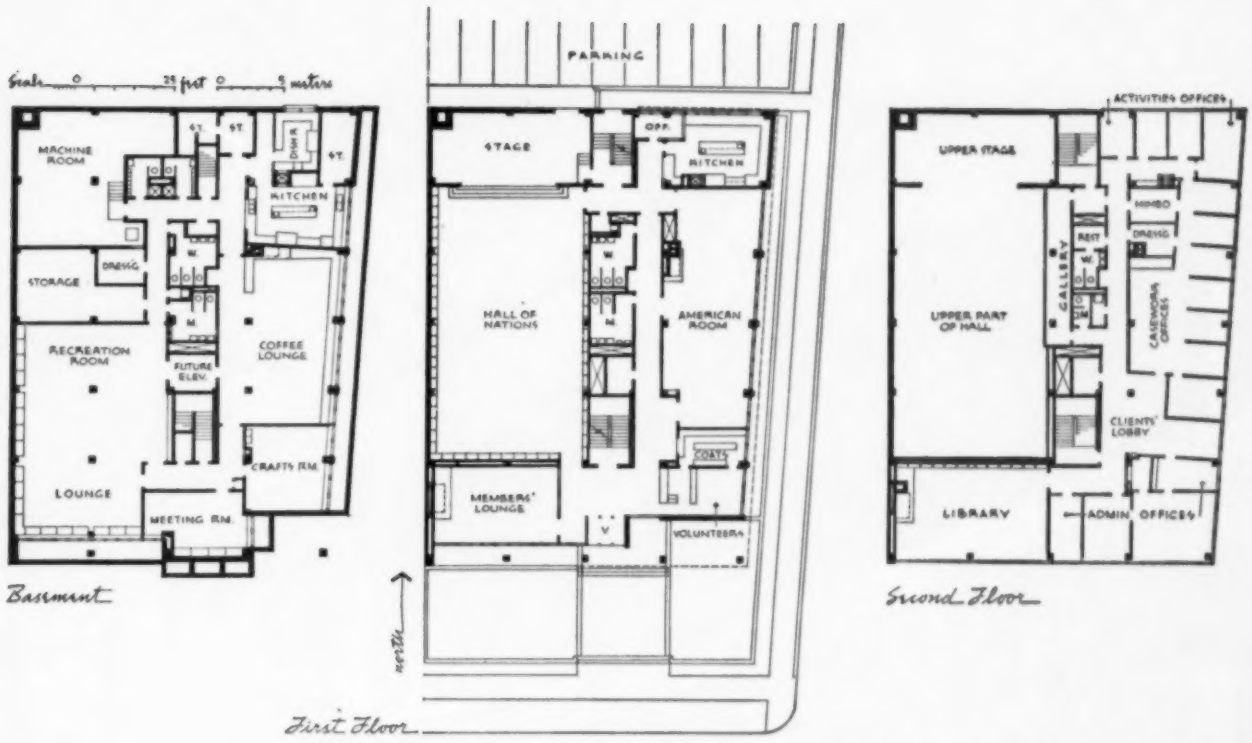


location	Detroit, Michigan
architects	O'Dell, Hewlett & Luckenbach
general contractors	Barton-Malow Company

Social Center

The International Institute of Metropolitan Detroit is a social center and casework agency for foreign-derivative groups who settle in the Detroit area. In addition to directly helping those confronted with a strange language, the organization sponsors a multitude of functions: among them are adult-education classes; handicraft groups; and social gatherings of various sorts—dances, group discussions, or dinners. Hence the flexible plan and kitchens provided on two floors.

The architects wanted to have the building "as light in appearance as possible." To achieve this, streetfront exterior walls of the concrete-framed structure are of aluminum sash, clear glass windows, and obscure blue-glass panels backed up by vermiculite plaster on a metal-channel grid. For floor slabs, the architects developed a system that was economical from both the design and construction points of view. "A flat deck was formed of plywood for the entire floor area. The steel pans were then placed for the joist forms, which also served as the main beam side forms. . . . All carpenter labor usually encountered in building and erecting beam forms was eliminated. The moment distribution of the frames fixes varying moments in the beams. The joist forms are easily shifted to provide a variable beam width and with a constant depth; the beam resisting moments are varied to the requirements of the analysis . . . ductwork can be kept in one plane eliminating costly bends around deep beams . . . riser lines can be spotted on the deck in their exact locations."



Raising of the first floor 3⅓ ft above sidewalk level allowed above-grade fenestration for the basement. Placement of plumbing core and circulation in the center of the plan made it possible to locate all main rooms along exterior walls. Photos: Richard Shirk

House

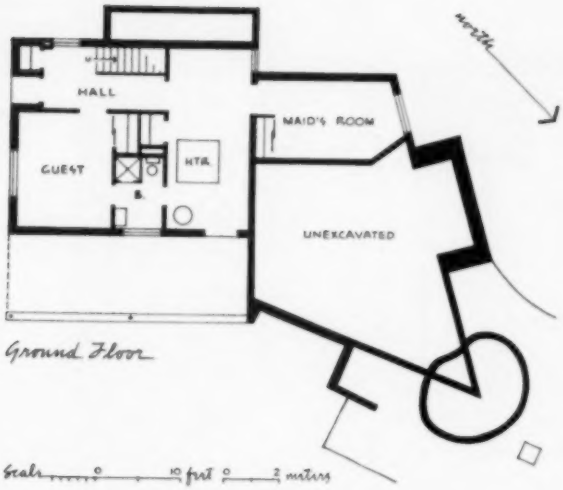
location	Cheyenne Mountain, Colorado
architect	Jan Ruhtenberg
interior decorator	Marshall Morin
custom furniture	Pete Baroni
general contractor	Platt Rogers

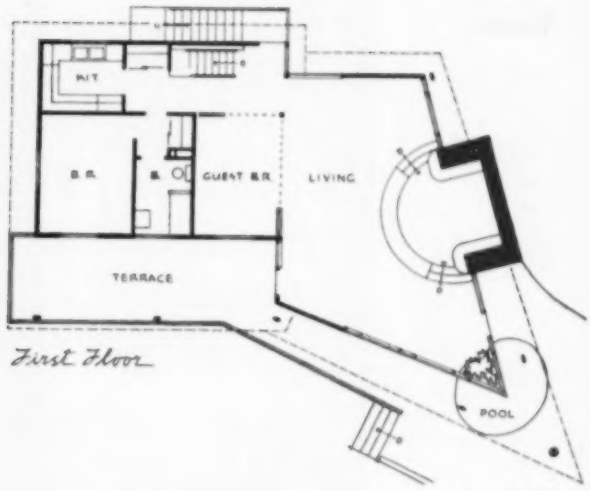
Mrs. Spencer Penrose of Colorado Springs has a host of friends, and her wide cultural interests include collecting works of art, world travel, and music. For weekend entertaining; for the enjoyment of music, both performed and recorded; and to house many of her choice possessions, she commissioned Jan Ruhtenberg to design this "shack"—as she calls it.

A requirement of the program was that the house be very simple, an escape from the city, a place for relaxation and informality. Located high on the east slope of Cheyenne Mountain, it has the western plain spread out below it.

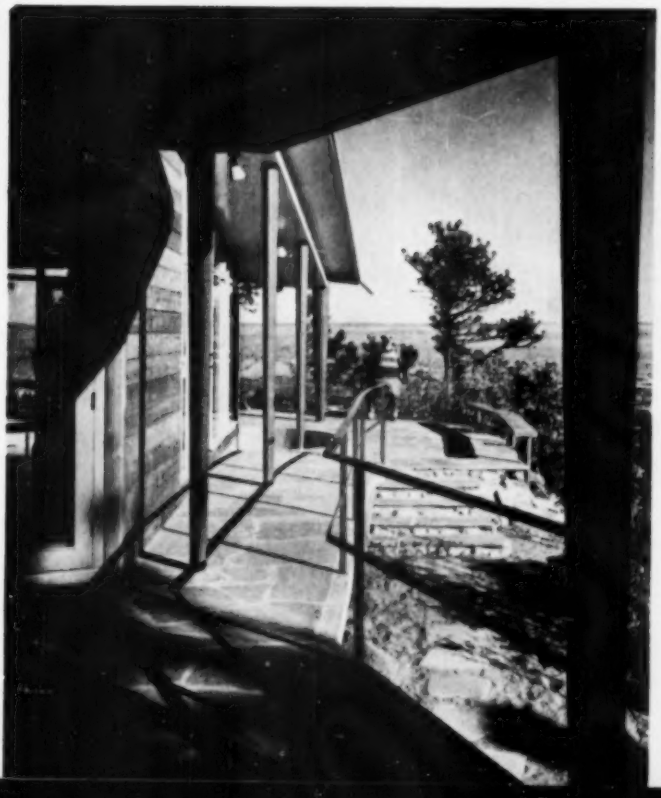
The views and contours of the site determined the design, Ruhtenberg explains. "The big living room had to be mostly glass to take in the different views of Colorado Springs, the water reservoirs, the Broadmoor Hotel, and the magnificent plains, whose colors change every minute of the day." Where the outlook is the most spectacular, the window walls of the living room actually join in a point, and the space is continued outdoors onto a covered terrace, which, like the house, is furnished with rare art treasures, chiefly from China, Japan, and India.

The elegance of the appointments contrasts with the simplicity of the structure itself—Roman brick cavity walls for the lower floor; a patented precut-cedar-log construction for the main floor. The roof is wood framed. Floorings are rubber or asphalt tile, and acoustical tile is used for ceilings. The large window areas have double-insulating glazing. Other windows are steel casements. Heating is by a forced-air perimeter system.





Warm tones of brickwork and natural wood; white-painted soffit of the corner "prow"; the cone-shaped columns, alternately sky blue and magenta, are effective. The suspension bridge links the ridge on which the "shack" is located, with the grounds of a private club. Photos: Guy Burgess



house

Walls of the stepdown, walk-in fireplace are surfaced with a native pink travertine, a tone also used for the window trim; light gray rubber is the flooring, and the Indian raw-silk draperies are light green and natural hued. Pink, gray, and purple are the colors in the sofa upholstery.

Wall above the stair is of cedar logs.

The grand piano occupies the most prominent position in the living room. A high-fidelity radio/phonograph system is installed all over the house as well as on the terraces, and there are two loudspeakers mounted in the living-room ceiling. The dining alcove off the living room may be enclosed as a guest room by sliding panels. The walls are hung with antique Chinese screens and scrolls.

The owner's bedroom is down the hallway on this same floor. A guest room, maid's quarters, and the heater room are on the floor below.

architectural safety precautions for hospitals

This discussion concerns safety of life, limb, and property as it pertains to hospitals. Some of the data presented also applies to industrial buildings where dust explosions are a hazard, or to plants where chemicals or explosives are processed. The author has attempted to summarize a complicated subject as a professional responsibility of the architect going hand-in-hand with medicine and surgery.

The architect, being human, is subject to all the ills that flesh is heir to. The life he saves by his knowledge of hospital safety could be his own. This discussion will have more realism as an extremely important architectural problem if the reader will imagine himself in the role of a surgical case in a hospital that he himself designed, specified, and superintended. When either architects or just ordinary people are having their anatomy remodeled or repaired, *they may be more dependent for survival on the skill of the hospital architect than upon the skill of the surgeon!*

There are five broad classes of architecturally preventable causes for death, accident, or property damage in the design and construction of a hospital: (1) anesthetic explosions, (2) electric shock, (3) electricity supply failure, (4) lightning, and (5) fire.

ANESTHETIC EXPLOSIONS

By far the most serious of preventable hospital accidents result from the use of flammable or explosive inhalent anesthetics. In a recent news story it was estimated that one in 70,000 surgical operations is fatal because of such explosions. A news clipping service reports an average of one death a month in the United States.

In February of last year, the Rev. James Cummings, a Chicago priest, was minus part of his stomach after a 2½-hour operation for intractable ("unruly") ulcers, in the operating room of St. Francis Hospital, Evanston, Illinois. As Surgeon E. F. Fowler was suturing the incision there was an explosion. The anesthetic bag was ripped open. Glass covers on the machine's flutter valves were blown out. Blood from the patient's lungs filled his trachea. In two hours Father Cummings was dead.

About a month later in the operating room of the Cumberland Hospital in Brooklyn, New York, a Mrs. Raffelinia Manfra had just been delivered of a baby by Caesarean section. The blast of an explosion seared her lungs. One hour later the mother was dead.

In an article on anesthetic explosions, the surgeon-author refers to such fatalities as "misadventures." However, the use of a demulcent word hardly condones preventable death. One who wakes up *hors de concours* for keeps in a hospital morgue might decide that the cause of his rigor mortis was a misalliance of the T-square and caduceus.

Not all anesthetic explosions are lethal. In a report in the *Journal* of the AMA it appeared that in 15 such accidents reported in detail, *only two persons were killed!* In nine instances there was no reported damage—although it is likely that some were given a bit of a start. The remaining four incidents had these "negligible" effects:

"Slight pulmonary hemorrhage; recovered."

"Slight burn on patient's face."

"Singed hair on patient's face."

"Surgeon, anesthetist, and patient slightly burned on face."

Static Sparks

One cause for the detonation of explosive mixtures of anesthetic gas and air is the static spark. The generation of static electricity occurs from movement or rubbing of garments or fabrics (*containing wool, silk, or synthetic fibers*) against each other or against objects of nonconductive material (*such as rubber, plastic, or Bakelite*). Static sparks have been identified as the cause of from 27 to 46 percent of anesthetic gas explosions. Yet M. Z. Gross, in a recent nationwide survey of hospitals, found that *90 percent* were not protected against the extreme danger of static electricity!

Humidity v. Static

Children learn what happens when they stroke a cat on a cold day. By bringing a pointed finger slowly toward the animal's sensitive nose until the gap is just right, the accumulated static charge will jump and so will the child and the cat.

If you drag your feet on a hotel corridor carpet on a winter day, you can expect an audible crackle of static and a small tingle in your fingers when you bring the room key close to the metal of the door lock.

Since such common phenomena are known to occur particularly in cold (and consequently dry) weather, the inevitable conclusion appears to be that high humidities eliminate the static spark hazard. And it is true. With room temperatures of 80 to 85 F and relative humidity from 60 to 100 percent, there is small probability of creating static sparks.

Why not apply this principle to operating rooms and anesthetizing locations?

If you happen to have a copy of *The Octagon* for May 1942 at hand, turn to page 6:

"Humidity control seems to be the recognized safeguard. . . . In the Los Angeles County Hospital the sterilizers in the operating rooms . . . are opened so that steam enters the room."

But there is the matter of the physiological effect of high humidity on the surgeon and staff. The ASHVE experts say: "High relative humidity tends to prevent evaporative regulation of the human body and is extremely harmful.

by Don Graf

Even when evaporation of sweat maintains a successful thermal balance, the process is accompanied by marked discomfort and interference with physical efficiency."

Obviously, it would be difficult for a surgeon to perform his delicate task with sweat pouring from his body and with the attendant disinclination for concentration or physical activity.

Relative humidities greater than about 55 to 60 percent make the control of airborne bacteria a further problem.

It is reported that the Los Angeles County Hospital discarded their Turkish bath method of humidification and static spark control.

Highly Conductive Floors

Having identified static as a real villain, the too-simple solution seemed to be a floor with little or no electric resistance. Such a surface would act as an "intercoupler" for all personnel and equipment, provided that all were in electric contact with the floor. Static would drain away to ground as fast as generated. Everybody and everything would be at zero potential and sparks would be impossible.

Since materials suitable for hospital floors were relatively dielectric, a 1941 issue of *Hospitals* carried an exhaustive paper by an M. D. on the status of "Anesthetic Explosions—Their Incidence and Prevention," in which a solution was suggested:

"The earliest example of a conductive floor is a large sheet of steel covering the floor to the outer area of the (operating) table and the working space around it."

Before the static risk had been identified, many architects preferred that operating room floors be of terrazzo or clay tile. This was because of color, wearability, foot traction under wet or dry conditions, an established installation technique, and ease of maintenance. With the static problem it was therefore natural that a means be sought for adding conductivity to the inherently desirable properties of these flooring materials.

Grounded Grill Terrazzo

The use of metal division strips in terrazzo for pattern and to localize cracks had long been common practice. Why not then put the strips closer together and connect them to ground? Sounded feasible.

An AIA Fellow broke into print in a hospital magazine by stating: "Brass strips . . . should be set . . . about 6" on centers throughout the central part of the room and connected both mechanically and electrically to a ground . . . we would use a pale green tile for the wainscot . . ."

As late as October 1949 the *Construction Specifier* carried a piece suggesting that grounded grid floors were the *best* for operating rooms. This seems incredible in the light of safety developments that were established by that time. It is even more curious because the same magazine had printed an article three months earlier to emphasize the dangers of highly conductive floor construction!

Tile With Conductive Joints

It was discovered that an addition of specially prepared acetylene carbon black powder to the mortar for joints and setting of clay tile would furnish a path to ground for the dissipation of static. However, there were some practical job difficulties in these installations. To assure the desired conductive performance, work had to be meticulous. The result depended upon the relation of tile size to joint width, proportion of "black" used, care to produce an absolutely uniform mix, and avoidance of joint depression which destroys electric contact.

SHOCK HAZARD RECOGNIZED

Soon after 1940 there was a growing suspicion that conductivity could create a new danger while correcting the first. In the *Hospitals* article quoted above, there occurs a mention of *shock* from defective electric equipment as being a hazard to the surgeon and staff. The *Octagon* for May 1942 presaged present floor construction standards as:

"The use of brass strips grounded to the piping system is now being questioned, as it is felt by some that the presence of conductive strips is more dangerous than their omission. In fact, one hospital with brass strip "protection" has rubber mats placed on the operating room floors around the table."

Terrazzo and other troweled materials such as cement, magnesium-oxychloride, and latex-cork composition (with grounded grillage of conductive-metal strips or dielectric-clay tile with conductive joints) are haphazard. The joints or the strips are near zero *resistance* and the field is near zero *conductivity*. There is no certainty that drag chains for grounding movable apparatus will make contact or that it will not arc from *almost* making contact. Personnel wearing conductive footwear may make too good a contact, a poor one, or none at all.

Suppose a surgeon is poised over a patient with a scalpel. He is grounded through his conductive shoes to a highly conductive grounded floor. At this moment he makes contact with a frayed electric cord or with a short-circuited piece of equipment. A current of only 15 milliamperes provokes an involuntary reaction that is swift. That knife in the hand of the surgeon could make a dissection not a planned part of the project.

The Gross nationwide survey of hospitals showed that 95 percent have defective wiring—some of which is assumed to be in anesthetizing locations.

With a completely nonconductive floor there is obviously no risk of shock from grounding. But the static bugaboo again becomes the peril.

Interrelation of Static and Shock

In 1949, Griffin and Daniel of the Public Health Service promulgated the principles of anesthetizing-location safety that are now accepted as basic. These researchers proposed that the resistance (or conductivity) of floors should be within such limits as to satisfy *two* opposed requirements. The *resistance* should be *low* enough to drain off static and *high* enough to prevent electric shock.

Experiments by Charles F. Dalziel to determine the perception point of shock

showed that the total resistance of person, socks, shoes, and floor should limit electric flow to ground to about 1.0 milliampere. Allowing for variation in this over-all value under different conditions, a floor resistance of 104,000 ohms is established.

For protection against static accumulation, a theoretical resistance of 250,000 ohms is indicated.

But since it is difficult to construct and maintain floors that will remain within this range, a working upper value of 1,000,000 ohms (1.0 megohm) and lower value of 25,000 ohms is recommended as both safe and practically obtainable.

Warning: It is important to remember that a vast amount of material has appeared in print on the subject of conductive flooring. Much of it is dangerously out-of-date and may be in your files. Even though it appeared originally in reputable magazines and was written by impressive authors, it should not be used as source material in designing or specifying.

Present Practice

New product developments in flooring materials quickly followed the establishment of the current recommendations of the National Fire Protection Association. These recommendations have been promulgated in the pamphlet *Safe Practice for Hospital Operating Rooms*, and have been endorsed by:

American College of Surgeons
American Hospital Association
National Board of Fire Underwriters
U. S. Veterans Administration

It could well hasten uniform incorporation into legal codes if the recommendations were unqualifiedly endorsed as accepted by the AIA, Producers' Council, and the Building Officials Council of America.

Some Conductive Floorings

Although the focus of the static-shock jeopardy is in the operating room, conductive floors are necessary wherever explosive or flammable inhalent anesthetics are used or stored. These spaces include delivery rooms, anesthesia rooms, examination rooms, corridors, and rooms directly communicating with such locations.

The following résumé of conductive flooring materials is not necessarily a complete listing of suitable products being offered at this time. The omission of any material or method is not to be construed as an implication that it in any way lacks merit. Neither is the order in which the following are listed to be construed as an indication of their suitability, cost, or other characteristics.

(1) Portland Cement Terrazzo. Specially prepared acetylene carbon black is added to the mixture for the underbed and to the matrix of the topping or precast terrazzo tiles. The matrix is dark in color, the resulting over-all tone being dependent upon the color of the marble granules selected. Dividing strips must be of a dielectric material, when used for pattern or for localizing shrinkage or structural cracks.

(2) Magnesium Oxychloride Terrazzo. This is similar in appearance to portland cement terrazzo. The cementitious material is known variously as composition, sorel cement, magnesia cement, compo, plastic magnesia, magnesite, and by various trade names that may (or more often may not) suggest the identity of the product.

Usually, magnesium oxychloride (being a salt) is susceptible to prolonged immersion in water or to constant dampness. The addition of a copper flour reduces the solubility of the flooring, makes it conductive, and allows a selection of matrix colors. Magnesium oxychloride is said to inhibit bacteria and fungus growth. Metal piping must not touch the matrix material. Magnesium oxychloride containing copper powder is a trade-named proprietary product.

(3) Clay Tile. The setting or underbed is a conductive mix of cement, aggregate, and "black." Conductive tiles are a dark color. They may be set either in conductive "mud" or with a thin-set conductive adhesive now being offered by a number of manufacturers. Grout for the joints can be colored cement.

(4) Rubber Sheets. This material is produced in sheets 36″ wide by ⅛″ or 3/16″ thick and must be insulated from the building construction. Wires are embedded in the material and are connected to a ground through a 50,000 ohm resistance. The color is black.

(5) Linoleum. Made in rolls 72″ wide by 1/8″ thick. Panels are interconnected with metal jumpers. Hair-crack seams are made watertight so that the entire floor is essentially an uninterrupted single surfacing. Color is black.

(6) Vinyl-Plastic Tile. These 9″ x 9″ x 1/8″ tiles come in a black color with green and white marbelizing. They are set with an adhesive in which ungrounded bronze window screen cloth is embedded.

Floor Grounding and Test

A conductive floor need not be provided with special ground connections, except for (four) rubber sheets. The others, to be effective, require only that persons and objects make proper electric contact with the floor. The path from floor to ground is generally attained by leakage to structural members and piping because of the large capacitance of the flooring.

The completed floor is tested according to procedure established by the NFPA. To test safety of personnel, anesthetizing locations are equipped with built-in testing devices so that any person entering can quickly determine his conductivity as safe or unsafe.

It goes without saying that *no* conductive floor may be insulated with films of oil or wax used to polish the surface, *unless* of a tested and approved conductive type now available for the purpose.

Nonarchitectural Explosion Causes

Some explosions may occur for reasons that are matters of administrative control rather than of architectural dereliction. Among these causes are incandescent objects such as lighted cigarettes; open flame of any sort; objects heated to temperatures above the flash point of gas mixtures; unapproved or faulty X-ray, electrocautery, electrocoagulation, or sterilizing apparatus; photo bulbs, amplifiers, recorders, or television cameras; percussion sparks from dropping or striking metal objects on hard mineral surfaces; outer clothing and shoes of personnel; bed clothing.

Isolated Electric Circuits

It is required that *ungrounded* circuits (otherwise known as "isolated") be used where there is a possible shock or arcing hazard. Such systems in proper working order make the resistance of the floor of no importance—one way or the other. Here is how it works.

A loop of bare wire going from a battery to a switch, to a buzzer, and back to the battery again, is an isolated circuit as long as it doesn't touch anything to ground it. With the switch closed and the buzzer buzzing, you can touch the circuit at any *one* place without feeling any shock.

But now open the switch. Have someone else touch the circuit on the other side of the open switch from which you are making a contact. You will both feel shock because you have closed the circuit through ground—and if your ground contacts are good, the buzzer will buzz!

Electric distribution circuits are normally grounded "on one side," thus taking the place of one of the persons in the buzzer experiment. Therefore, anyone making contact with the circuit and ground would receive a shock of possible severity limited only by the fuse or relay protection of the circuit.

If, however, the circuits of anesthetizing areas are isolated from the grounded supply feeders with dry-type transformers in an AC system, or by a motor-generator in a DC system, then contact at one place will not complete a circuit to produce either shock or arcing of faulty equipment.

There remains a real danger. The supposedly isolated wiring may be inadvertently grounded and warning devices—to show when such a condition exists—may themselves be out of order. Therefore, the isolation of circuits can be regarded as a safeguard only when faultless. *Isolated circuiting is supplementary and not a substitute for a floor having safe electric resistance to ground.*

Wiring Devices

It should be obvious that all connection and control devices, as well as apparatus and fixtures, should be of a type approved for use in explosive atmospheres as required by Sections 5016a and 5017a of the National Electric Code. Precautions against arcing and explosion are also protection against shock.

Ventilation

Although mechanical ventilation is not considered positive protection against anesthesia explosions, nor is it mandatory, it is desirable. Mechanical ventilation with or without cooling is recommended for the comfort of personnel, possible reduction of air-borne bacteria, removal of odors, lessening the hazard of gross spillage of combustible liquids, and as a convenient means of controlling humidity. Ventilation has little effect on removing or diluting localized concentration of anesthetic gas from near the head of the anesthetized patient.

EMERGENCY ELECTRIC SUPPLY

Power for illumination and equipment may fail because of acts of God or man. Sleet, mechanical failure, wind, floods, lightning, fire, strikes—there are many causes for interruption of electric service. The consequences in a hospital may range from inconvenience to fatalities.

The duration of power failures is generally a relatively short time, well within the ampere-hour life of portable or built-in battery-operated emergency lighting for the operating suite. A lighting failure during an operation could well be tragic.* On the resumption of normal service the batteries are recharged from the restored power supply and made ready for the next blackout.

An interruption of several *days* is a different matter. There would be no light in the operating room or anywhere else, and *all* electric equipment in the entire hospital would be inactivated—elevators, iron lungs, incubators, intercoms, refrigeration for plasma and other biotic perishables, fire protection signals and equipment, pressure pumps, heating system, food storage and preparation, therapeutic and diathermy apparatus.

Even in such well-populated areas as Westchester County in New York and in southern New England, there have been periods of a week or more without electric service or telephones. When these admittedly rare but nonetheless possible contingencies occur, a hospital can declare no moratorium on sickness and disease until the watts flow again. For protracted stoppage of power, automatic motor-generator plants are manufactured with capacities up to 35,000 watts or more at various voltages, phases, and cycles.

LIGHTNING

Buildings protected with properly installed lightning-rod systems are not subject to property damage or harm to occupants. Lightning causes fire, nervous and physical shock, electric-system failure, ignition of explosive materials, and more or less sudden death.

Many types of hospital construction afford reasonable safety against the lightning hazard. Because of the use of combustible or explosive materials and because of the physical limitations of the patients, lightning protection should be a requirement for nonfireproof structures in outlying localities. The National Fire Protection Code should be followed.

FIRE

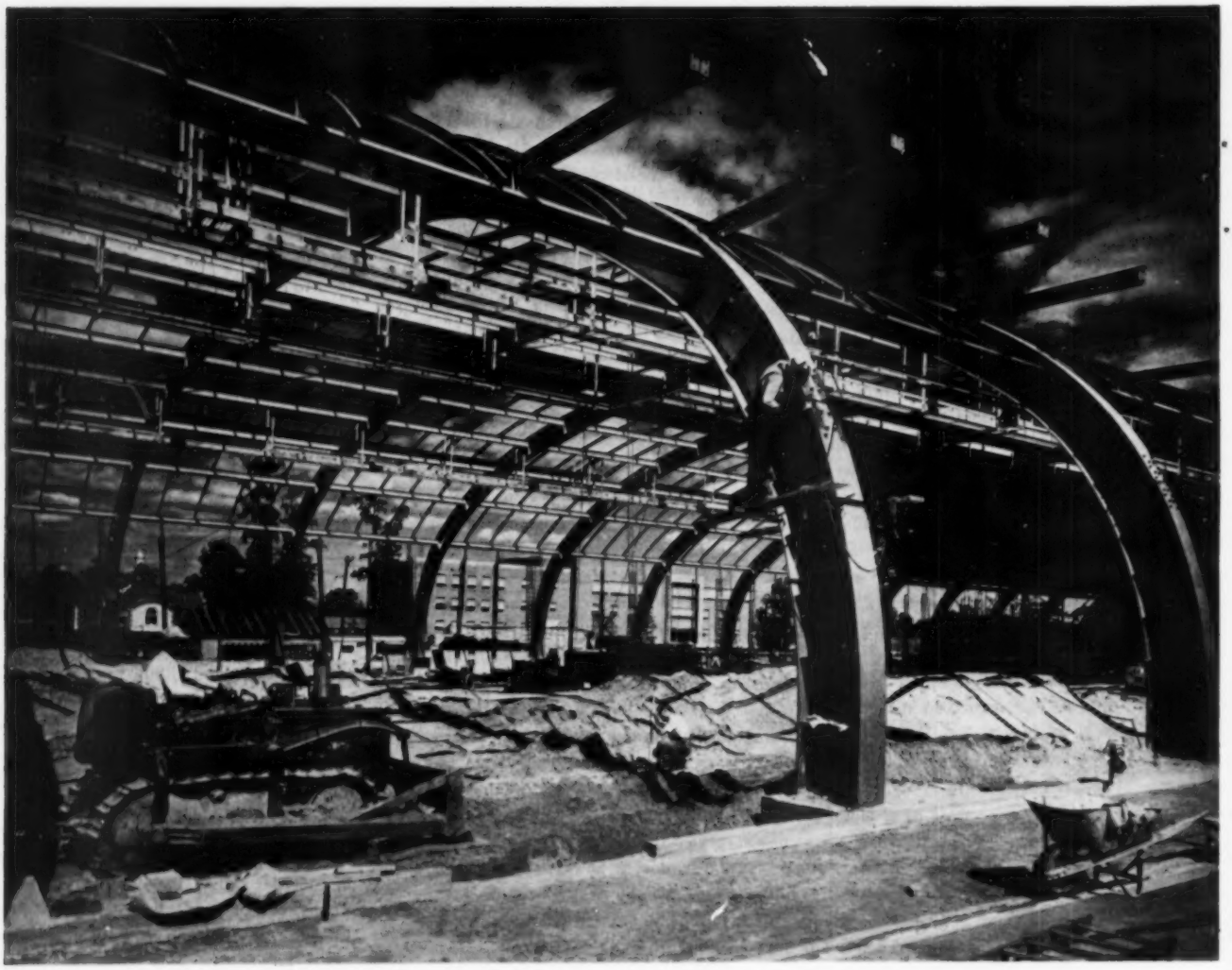
The tragic fire at Effingham, Illinois, which cost 74 lives and many injuries, and the Cleveland Clinic fire where 125 patients and hospital staff members died, are spectacular instances of disasters that occur all the time without widespread publicity. There are about 1000 fires per year in hospitals.

Complacency and procrastination—not ignorance—are responsible in the face of common knowledge of fire prevention. Even more merciless and preventable than fire in a ship at sea with physically active passengers, is a fire in an understaffed hospital occupied by invalids. Involuntary cremation, asphyxia, nervous shock, pyrophobia, and third-degree burns can only be attributed to negligence.

Established safety measures are: automatic sprinklers; noncombustible enclosures for circulation and vertical shafts; fire-alarm systems and independent fire-fighting provisions; elimination of combustibles including rubbish, draperies, furnishings; and means for evacuating the helpless. No precaution is too trivial to consider in preventing loss of life, physical injury, or property damage by fire.

* *See "Hospital Lighting" by Howard Haynes, July 1952 P/A.*

Connecticut University Field House: Structure



Connecticut University's new field house —designed to accommodate basketball courts with seating for 5000 persons, and squash courts, equipment and lecture rooms—is now nearing completion at Storrs. Framed by 14 rigid-steel arches, its dimensions are: 343′ long, 150′ wide, and 40′ high. Over steel roof purlins was placed 42,000 sq ft of Wheeling Tri-Rib decking and over 1″ insulation board a four-ply built-up roofing. The roof decking with its interlocking edge and stiffening ribs was easily applied to the curved steel arches; each section measuring 20′ x 1′-6″ weighs approximately 60 lb. It has been reported that the gross weight of the purlins and the roof decking is approximately 40 percent of wood sheathing, requiring 83 percent of the joists needed on a wood roof. Four-man crews (two welders and two erectors) laid the steel deck at a rate of 4000 sq ft per day. This $930,000 field house was designed by Frederick C. Teich, of Hartford, and Robert W. Loomis, of Winsor, was the structural engineer.

junior-channel rigid bents

Figure 1—six-foot tapered overhang beams (right), butted on rigid-steel bents, are connected at outer edge by angle iron which served as form for pouring the roof and as facing. Roof is formed by bulb-tees and insulation board covered by gypsum and asphalt.

Figure 2—center weld joining two bent sections (far right) was field-connected on the ground before erection. Only 21 working hours were needed to erect 30 bents—including welding of center joints before hoisting.

Figure 3—permanent outside spacers between bents (right) were formed of single 10″ channels bolted to studs welded onto each bent. Temporary wooden spacers were used in conjunction with cables to true the beams, although little adjustment was needed.

Figure 4—two sections of steel channel (far right) are welded together with bottom weld leveled off and left exposed. An added economy can be realized by merely using a paint covering over the bents in the finished interior.

Requiring minimum weight, erection time, and expense—a rigid-bent framing method was successfully used in the construction of a school near Spartanburg, South Carolina. Originated by W. E. Freeman, Jr., Greenville architect, the system employs box-shaped, prestressed-steel girders formed of two sections of 10″, 8.4-lb Jones & Laughlin hot-rolled channels, welded together at the site before erection. Exterior columns were mitered to the 72′ girders while interior pipe columns were welded in place. Each exterior column was spread ¾″ at the base when welded to the beam and brought back to perpendicular by the weight of the bent during hoisting. A camber of ⅝″ per 30′ span was obtained by resulting tension, when the bent was anchored, and was offset by the weight of the roof. In the first section of the main structure, 25 tons of steel were used at an estimated cost of $29 per ton for field connections, erecting, and plumbing of the first 30 bents. Outside walls consist of brickwork to waist level with full windows above.

NEW DIRECTIONS IN THERMAL INSULATION: PART VII

by Groff Conklin

slabs, crawl spaces, and basements

It is widely acknowledged that serious damage can be caused in the structure of a house by moisture arising from the ground on which it is built. The gravity of the problem will depend partly, of course, on the type of earth encountered, but even more on the relative effectiveness of the measures taken to prevent ground moisture from "seeping up" into the structure because of poor construction practices.

There are basically two situations in which trouble of this sort can arise. The first is in homes built on slabs. Here one must prevent moisture from coming through or around the slab. The second is in homes built over basements or, much more often, over crawl spaces, where moisture vapor can collect in such quantity that it will penetrate the structure above. The techniques of handling these two problems are, of course, different.

(A) House on Slab. In the case of a house built on slab, condensation or moisture damage may occur at any time, particularly if the slab is insulated at the perimeter without an effective vapor seal. Trouble can also arise anywhere in the slab if ground moisture is permitted to enter it.

It is standard practice to cover the gravel base of the slab with a heavy waterproof paper. According to a research report published recently by the HHFA[1] a 55-pound smooth-surfaced roll roofing is far and away the best of the commonly available materials to use. This report also states: "Industry has, for some time, realized the deficiencies of present membrane construction and is developing membrane materials specifically designed for use in contact with the ground. The first of these products is now coming into the market. . . . It is designed to provide a more flexible sheet which will be easier to lay and one which has greater resistance to puncture as well as good durability under attack by rot fungi."

The lighter asphalt felts frequently used are not serviceable over a period of time since they tend to deteriorate rapidly once in contact with the ground.

The strips of material should be lapped a minimum of six inches and each lap should be cemented with a hot or solvent-type bituminous cement. Any punctures caused during construction should be repaired with cemented patches. The strips should be turned up at the ends and also along the sides where they butt on the foundation wall so that they will extend to the top of the slab. A suggested edge detail is shown (*Figure 1*).

HHFA also urges that "where the building site has a high water table or is poorly drained, and particularly where it is desired to protect a wood block floor or other material that can tolerate little moisture, *two* layers of 45- or 55-lb roll roofing or new membrane materials, solid mopped between, be used."

It is also important, the HHFA report points out, that the base course be composed of compacted coarse-washed gravel, "high enough above the surrounding yard to be well drained." Many houses built on slabs whose gravel base is actually below grade have suffered extensive moisture damage in recent years; consequently great care should be taken to provide adequate drainage.

How the roll roofing and edge insulation should be designed for thorough protection against heat loss and moisture damage is illustrated (*Figure 1*). It is suggested that a slight recess in the gravel be prepared about 1'-6" wide and that a durable-type insulating board with a k-factor not exceeding 0.5 be laid in it, butting against a vertical strip of the same material reaching to the top of the foundation wall; the insulation, of course, to be laid over the vapor barrier roll roofing. If the insulation is not itself of a waterproof type, its surface should be covered with a thick coating of asphalt.

The National Bureau of Standards, in its Building Materials and Structures Report No. 128, describes a series of tests that were made on various types of slab construction with varying vapor barrier and insulation installations. According to these tests, organic fiber boards should never be used for insulation in this manner since, in the test building, such materials were found to have deteriorated very greatly after only six years—despite the fact that they had been thoroughly mopped with asphalt. A rubber board which was used in other test sections showed no deterioration at all after five years in place and, of course, no inorganic insulating board that is rigid enough to support itself when in a vertical position would show any deterioration either. Certain of these inorganic boards also provide their own vapor barrier protection which eliminates the cost of an extra vapor barrier.

The floor detail shown (*Figure 1*) is, of course, only one of many possible types of construction. The BMS report referred to above shows nine other details, some effective and some not. The architect who is concerned with achieving a high level of protection against heat loss and con-

[1] *"Durability of Moisture-Resistant Membrane Materials in Contact with the Ground." Housing and Home Finance Agency, Housing Research Reprint Series No. 15, available from the Superintendent of Documents, Washington 25, D.C., for five cents.*

densation trouble at the edges of floor slabs would do well to obtain a copy of the report.[2]

If radiant or perimeter heating pipes or ducts are to be laid under the slab or in it, special types of protection must be used. These should follow the recommendations of the heating contractor or can be worked out on the basis of the principles given herewith by the architect himself. The main purpose of protection in this instance will be to prevent excessive heat loss into the ground and moisture damage to the pipes or ducts arising from the ground.

(B) Houses Built Over Crawl Spaces. Many small homes are being built partly or entirely over crawl spaces today; it is one practical way of reducing costs. Sometimes a part-basement is included, the rest of the area under the house being unexcavated. Whether there is a part-basement or no basement at all, it is of the greatest importance that protection from moisture rising from the ground into the floors and walls of the structure be provided when the house is built. Some of the worst condensation problems found arise not from too-tight houses or too-high interior humidities, but from ground moisture. Furthermore, as was mentioned previously, this condition exists in all parts of the country; it is not only a cold weather problem.

All crawl spaces of whatever nature should be protected from moisture with a durable vapor barrier on the ground surface and with sufficient foundation wall ventilation to dispose of any vapor that may get through the vapor barrier or the

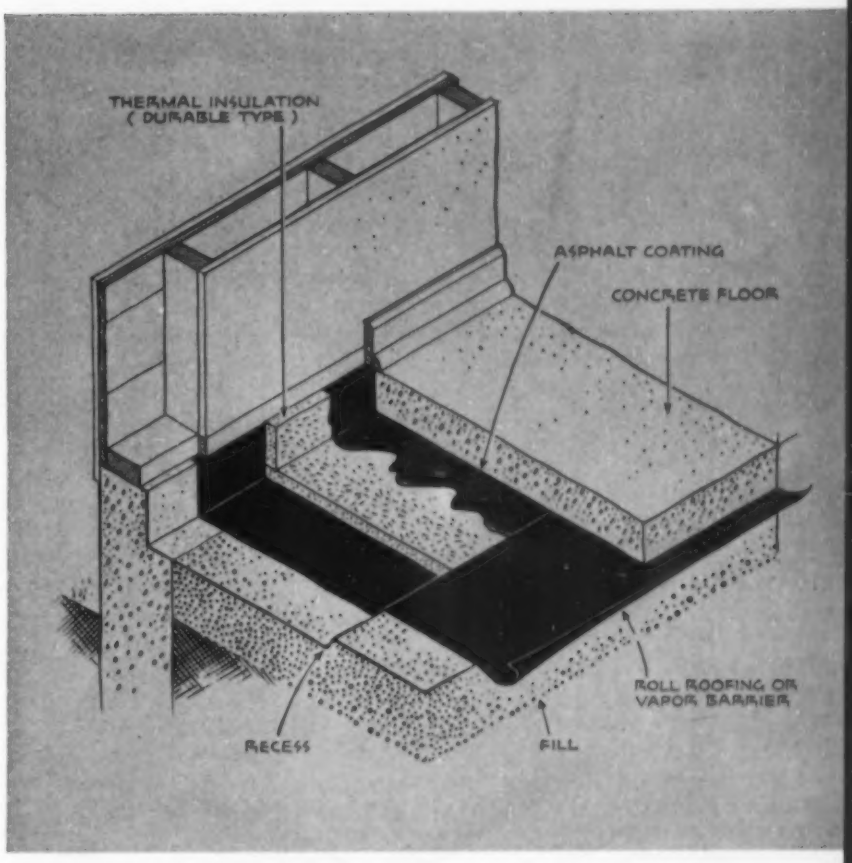


Figure 1—insulation and vapor barrier at edge of slab in a basementless house. Protection against condensation in the slab and moisture damage to floors and walls is shown in this detail. Since soil temperatures are usually lower than air temperatures in summer, condensation may also occur then as well as in winter. One way to alleviate this condition is to use low-density concrete—perhaps one containing vermiculite or perlite as part of the aggregate.

[2] *Martin, Achenbach, and Dill: "Effect of Edge Insulation Upon Temperature and Condensation on Concrete-Slab Floors." National Bureau of Standards, BMS Report 128. Available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C., for 20 cents.*

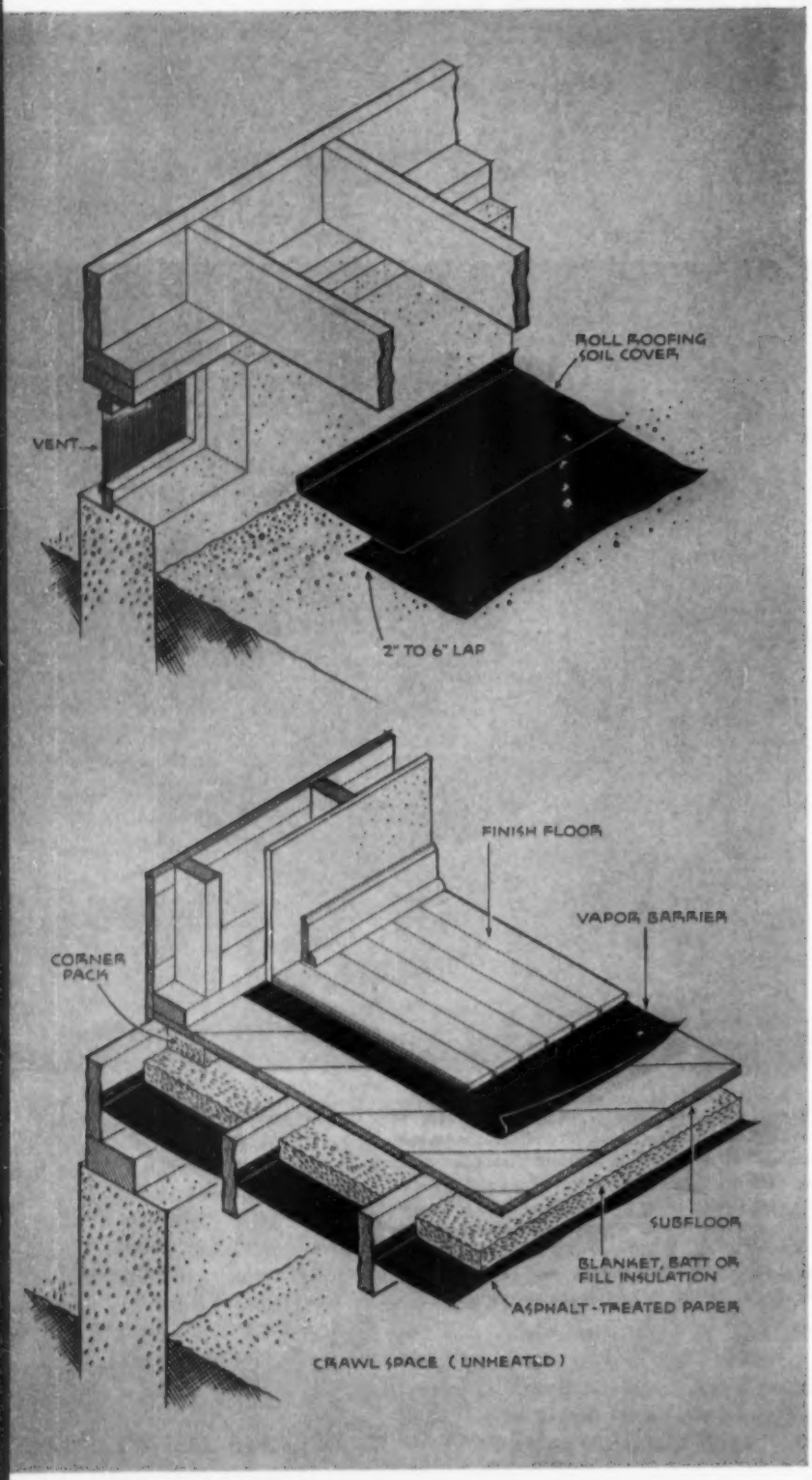
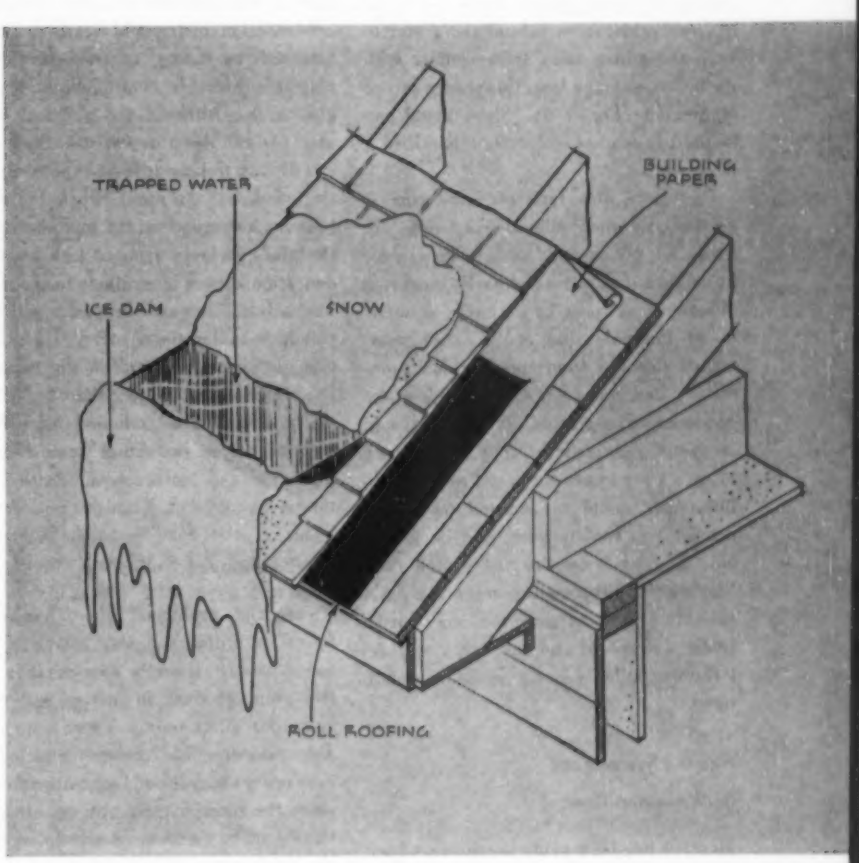


Figure 2—ground cover and wall vent in basementless house. The wall vent should be covered by a heavy-wire mesh—four mesh to the inch or even two—sufficient to keep out small animals but not to reduce air motion significantly. Ground-cover sheets should be turned up against the foundation wall for protection at the perimeter and should be lapped from two to six inches. The soil surface below the building should either be above outside grade or should be provided with tile drains if there is a chance that water can get inside the foundation wall.

Figure 3—insulation and vapor barrier in basementless house over crawl space. Although the asphalt-treated paper shown here as support for the insulation may be a good vapor barrier, its joints cannot be sealed and therefore a barrier between subfloor and finish floor is called for. If there is room, the asphalted paper can be attached to the bottoms of the joists rather than suspended between them as in this detail. When suspended, the flanges should be stapled to the sides of the joists every six inches. In all cases care must be taken to use corrosion-resistant nails or staples. The corner pack of insulation shown is to provide warmer floors and reduce heat loss around the outside of the building.

Figure 4—method of protecting eaves from water damage due to snow and ice dams. The strip of roll roofing should be laid over the usual roof sheathing paper and under the shingles. When wood shingles are laid over strips with spaces between them and without sheathing paper, the roll roofing should be nailed directly to the strips.

Illustration adapted from *Condensation Control in Buildings*, HHFA, 1949.



walls. HHFA recommends using 55-lb roll roofing here also. It should be well lapped but not necessarily cemented. Foundation wall vents, as described below, should be installed as high in the foundation wall as possible so that air will pass directly over the bottoms of the floor joists, thus helping to keep them dry (*Figure 2*). In cold climates, underfloor insulation, together with a vapor barrier laid above it between the subfloor and the finish flooring, should be specified, as indicated (*Figure 3*). Instead of the asphalt-treated paper to support the insulation, wire cloth can be used, or a blanket insulation with a good integral vapor barrier can be placed level with the tops of the floor joists before the subflooring is laid. Aluminum foil can also be installed as a combination insulation and vapor barrier.

Wall vents need not be as large or as numerous when a durable and well-installed ground cover is used, though some are advisable merely as insurance. The formula for vents in a foundation wall of a house without ground cover is given by the HHFA as "2 sq ft per 100 lineal ft of building perimeter, plus ⅓ of 1 percent of the crawl space area." With ground cover, the vents should not amount to less than 10 percent of this formula.

Exactly the same requirements for ground cover and ventilation should be followed in the unexcavated areas of homes with part basements. Care should also be taken to prevent water and water vapor from entering the basement area from the unexcavated part, particularly if the basement is to be used for storage of perishable goods or as the site of a furnace.

(C) Basements. The standard methods of good cellar construction, with a coat of cement parge over the outside walls and a layer of asphalt mopped over that, plus an open tile drain around the base laid in a trench filled with loose washed gravel, will usually guarantee a dry basement. The work should, of course, be carefully supervised, since mistakes or sloppy workmanship at the time of construction can cause trouble later on. In particular, care should be taken to make sure that there is a lead-off drain from the trenches around the base of the foundation and that this drain will carry the water to a point lower than the lowest level of the foundation drain. Otherwise, the water collected in the latter will simply stay where it is and eventually will penetrate the wall and cause a wet cellar.

The Special Problem of Snow Back-Up and Ice Dams on Roofs

A reliable method of preventing water damage due to melting water behind an ice dam can be easily accomplished. By carrying a layer of heavy-roll roofing along the edge of the eaves so that it will cover the roof sheathing well above the line where the wall meets the roof, and

placing 1" wood spacer blocks or metal ties every 16 inches behind the gutter to keep the gutter away from contact with the board, damage from this source can be eliminated (*Figure 4*). Sheet metal can be used instead of roll roofing, provided it is rust-proof.

Obviously, this type of precaution is needed only where climatic conditions are likely to be severe, though experience has shown that many ordinarily moderate climates may have bad winters at infrequent intervals that could cause unexpected damage from this source if protection had not been built in when the house was first erected. It is a small and inexpensive expedient; if it is necessary to save a few cents, the usual roof sheathing paper could be omitted where the heavier roll roofing goes, and be placed only beyond it on the rest of the roof. Roofing felts themselves are not usually suitable protection since they may not be really waterproof and since they may deteriorate under adverse moisture conditions.

Heating Systems and Condensation Control

Mention has been made previously of certain types of furnaces that are provided with humidifying equipment to add to winter comfort. If furnaces of this type are being installed, there is one word of advice the architect should pass on to the home owner: never use the humidifier until the new house is thoroughly dried out—*not until after two or three heating seasons at the least*—and not after that unless the occupants find the air in the house uncomfortably dry.

One thing that well-designed heating systems can do, particularly in modern homes with very large glass areas, is reduce or eliminate the nuisance of window condensation during cold weather. This is achieved by using a perimeter outlet system, preferably continuous under the glass areas. Although this will not get rid of any of the moisture vapor in the house, it will help to keep it from condensing on the windows. At night, when the sun's heat no longer raises the temperature of the glass surfaces exposed to it and condensation is even more likely to occur, the best solution is heavy draperies, either of standard materials or of the insulating type newly appearing on the market. Draperies are, of course, almost a "must" in the so-called solar house, for privacy as well as for protection against nighttime cold and too much sun in the daytime.

Air Conditioned Houses

No special problems other than those found in ordinary homes have yet been found to exist, from the condensation control point of view, in houses with year-round air conditioning. There is no available evidence that reverse condensation ever occurs to a serious extent in summer since the interior temperatures are practically never kept so much lower than the outdoor temperatures that a dewpoint could be reached by outside vapor penetrating toward the inside of the house

Of course, in certain regions of the country where summer temperatures and humidities are very high, occasional reverse condensation might occur, though it is hard to imagine that it could do so frequently enough to cause any damage. Architects in these regions will do well to follow the recommendations of the air-conditioning suppliers and if they suggest a vapor barrier on the outside (particularly if there is no winter problem) it might be well to include one.

condensation in old buildings

Although architects are not usually concerned with condensation in existing houses, but only with preventing it in new structures, it should be pointed out that they undoubtedly will be confronted with the old-house problem at some time in their lives as, for example, when undertaking a remodeling job. They should know a little about why it occurs and what to do about it.

With the rapidly rising costs in heating fuel, accompanied by better standards for winter comfort that require higher interior temperatures and humidities and an absence of drafts, owners of older houses have in recent years been spending sizable sums of money to "winterize" their homes. This often involves using storm windows and doors, as well as weatherstripping; blowing insulation into the walls and attic floors; using tight and relatively vapor-resistant exterior wall materials; and installing humidifying equipment to raise the interior humidity to what is considered a comfort point.

When all these things are done, a moisture load is put on the building that it cannot dispose of, and condensation damage results.

The problem could, of course, be easily solved by educating the home owner to open a window for a while, whenever condensation begins to appear on the glass, or to install a wall fan in the kitchen and turn it on when necessary. But few and far between are the housewives who will, after spending all that money to achieve what they consider to be real winter comfort as well as low heating costs, open a window to let some of the valuable warm air escape. Actually, of course, little heat is lost if this is done right.

If and when an architect is approached for suggestions on how to cure a condi-

tion of this sort, he can recommend the application of a suitable paint vapor barrier or wall papers with high vapor resistance, as described earlier in this series. He can also suggest the provision of means of ventilation, either natural or forced. And, if the conditions are not remedied entirely by these devices, he can propose some sort of *automatic* dehumidification equipment, either an exhaust fan attached to a humidistat which will turn the fan on automatically whenever the humidity rises above a danger point, or large automatic silica-gel dehumidifiers for use in rooms where the vapor production is particularly high.

In old houses, moisture resulting from damp crawl spaces can be kept out of the dwelling by installing large, unshuttable louvers in the foundation wall and by covering the surface of the ground with widely overlapped strips of 55-lb roll roofing. This latter method is preferable if only one of the two is to be used since the louvers can become filled with leaves, dirt, and snow, or even actually be sealed off by the home owner, who may complain of cold floors resulting from the air motion through the crawl space. However, it is definitely preferable that *both* techniques be adopted and that the floor temperature be kept up by placing insulation between the floor joists, with a good vapor barrier above it. (Details for protecting crawl spaces were described earlier in this series.)

Admittedly, the difficulties encountered in trying to cure a moisture problem in the crawl space of an already-built house are great and the cost is often high. Only too often, crawl space between the bottom of the joists and the surface of the ground is too shallow to permit men to enter and put the roll roofing in place. Expensive hand excavation is then needed to deepen the area enough to permit entrance. However, when the situation is severe, even that cost must be borne since not to do so might well mean the eventual collapse of the floor from rot and extensive damage to the walls and the roof of the house due to moisture arising by stack action.

In the case of damage caused by snow back-up in an existing house, the shingles will have to be taken up several courses above the line where the wall joins the roof and a layer of heavy-roll roofing or a sheet of nonrusting metal will have to be laid over the sheathing, after which the shingles may be relaid. In certain types of roof construction the fascia boards should be removed at the same time and the roll roofing continued down behind it, if it is at all possible to do this. If the gutters are fastened directly to the fascia boards, they should be removed and spacer blocks should be placed between them and the fascia.

conclusion

It must be remembered that this survey on condensation in buildings is a rather summary one and, furthermore, that it discusses a subject about which there is much that is still either controversial or wholly unknown. This series should be considered an interim report rather than the final statement on the subject which it certainly is not.

Nevertheless, it is felt that if the architect conscientiously follows the basic recommendations offered, including suggestions both on specification and on careful supervision of the work as it is done, the possibilities of damage to the structure from moisture condensation and from other types of water penetration should be reduced to a minimum.

HOSPITALS

Georgia Baptist Hospital, Atlanta, Ga.
Architects: Stevens and Wilkinson, Atlanta, Ga.
Builders' Hardware: Dinkins Davidson Co., Atlanta, Ga.

SCHOOLS

Valley Stream Memorial High School, Valley Stream, Long Island, New York
Architect: Frederic P. Wiedersum, Valley Stream, L.I., N.Y.
Builders' Hardware: Lockwood Hardware Mfg. Co., New York, New York

HOTELS

Statler Hotel, Los Angeles, Cal.
Architects: Holabird & Root & Burgee, Chicago, Ill.
Associate Architect: Wm. B. Tabler, New York, N. Y.
Builders' Hardware: Builders' Hardware Supply Co., Los Angeles, Cal.

DEPARTMENT STORES

Sakowitz Bros., Houston, Texas
Architect: A. C. Finn, Houston, Texas
Builders' Hardware: Peden Iron & Steel Co., Houston, Texas

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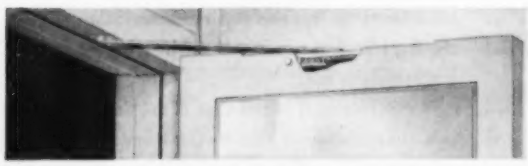

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Singer sings for specifiers

Our little old Construction Specifications Institute, Inc. is growing nicely, thank you. We now have chapters in Southern California, Chicago, District of Columbia, and New York and a few more in the embryonic stage. I am now doing a second turn as President of the Metropolitan New York Chapter and find it a simulating experience. Here is why. We asked Alexander Singer (Cuzzi Bros. & Singer, Contractors, Mt. Vernon, New York) whether he thought specifications are really effective as a working tool. He devoted most of his talk to an analysis of the three principal functions of specifications, and showed how, in the light of those functions, the effectiveness of specifications might possibly be improved, i.e.:

(1) Specifications are a legal document. He emphasized the fact that the owner and the architect should have faith in the contractor, and vice versa. However, there are cases where there is not much good faith, and it is in such cases that the specifications, as a legal document, are (along with the drawings) all we have, and (more specifically) form the basis of all we are going to get. At the same time, he added, it is not Legal English that makes a good specification out of a poor one.

(2) Specifications are an estimating tool. Estimating is an activity not to be envied. However, if the specifications tell the story simply, without reference to unavailable manufacturers' literature (ASTM and other standard references are satisfactory), there is a lesser tendency for the estimator to allow (and allow enough) for potentially costly specification requirements, which requirements he simply may not have time to investigate in detail during the bidding period. And, please, pleaded Singer, be considerate; do not include an unreasonable number of alternates. He also said there is nothing he likes better than a good "Scope of Work" article in the specifications; it immediately tells the estimator what he has to watch for.

(3) Specifications are a means of communicating important information and a means of helping the contractor construct the building as it was intended. Singer stated that he encountered specifications in which labor procedures should have been more fully described. A general contractor should be informed on such matters as, extent of reshoring, protection, curing of concrete, manner and time of backfilling, protection of brickwork during course of construction to prevent efflorescence; in short, anticipate the desired results as well as the shortcuts which are desired; write the specifications in order to guarantee the former and prevent the later.

In Memoriam

to the Children and Adults Whose Lives Have Been Sacrificed in School Buildings Disasters

1908	Collinwood, Ohio	175 Lives Lost
1915	Peabody, Massachusetts	22 Lives Lost
1917	Asheville, South Carolina	7 Lives Lost
1922	Covington, Georgia	2 Lives Lost
1923	Camden, South Carolina	77 Lives Lost
1924	Babbs Switch, Oklahoma	36 Lives Lost
1930	Troyon, Oklahoma	3 Lives Lost
1937	New London, Texas	294 Lives Lost
1954	Cheektowaga, New York	15 Lives Lost

lest we forget

I asked Dr. Englehardt Sr. of Englehardt, Englehart & Leggett, Educational Consultants, to say something brilliant in the field of school planning for this column. He said, "Never mind the brilliance. Let us be mindful of a serious problem concerning fire."

A little while later he wrote to me as follows:

"Decade after decade serious disasters with attendant appalling loss of lives have occured in the nation's schoolhouses. During the 'forties' a respite seemed to have been accorded, but just recently the blow fell again on an unsuspecting community. Apparently such potential dangers lurk with greater elusiveness in old rather than newly constructed buildings. Periodic and rigid inspection of all school buildings seems to be imperative. The safeguards of yesterday may not suffice today. Let no School Board rely upon the alibi that it was not informed. Let every School Board insist upon frequent inspection and report on all potential dangers in schoolhouses. Let every School Board make it a positive practice to apply the suggested remedies. These children, their teachers, and parents should not have died in vain. The future record must be kept free of these agonizing school horrors."

volume II—mechanical & electrical

My collaborator and I are having a monstrous time with the writing of Volume II — Mechanical and Electrical of *Streamlined Specifications Standards*. This volume concerns itself with specifications for plumbing, heating, ventilating, air conditioning, refrigeration, and electrical work. Volume I — Architectural, comprehensive as it is, did not require nearly as much effort to write as does Volume II. Architectural specifications, whether good or bad, at least have some semblance of organization. Our recent investigations have shown clearly that specifications for mechanical and electrical trades are thrown together invariably in a manner that can be described only as chaotic. Do I see some hands raised? Challengers will please come forward, have their noses counted, and present some tangible evidence to the contrary. We are quite excited about Volume II because we are certain it cannot fail to help bring order out of confusion, in addition to improving and shortening specifications for these trades. I have received some very nice comments regarding Volume I—Architectural and hope sincerely you will get around to trying it on for size. *End of Commercial.*

IRT

Elizabeth Coit, AIA, my favorite lady architect, writes:

"*Dear Mr. Small:* Apropos of your remarks on trade names in May 1954 P/A, have you had occasion to check on the W.C.'s in the Interboro Rapid Transit retiring rooms? Those in the women's section are labeled 'Rapit Transit.' I think you will approve that one."

Dear Elizabeth: Hadn't I better investigate first?

Burton A. Schutt, Architect, AIA photograph: Dale Healy

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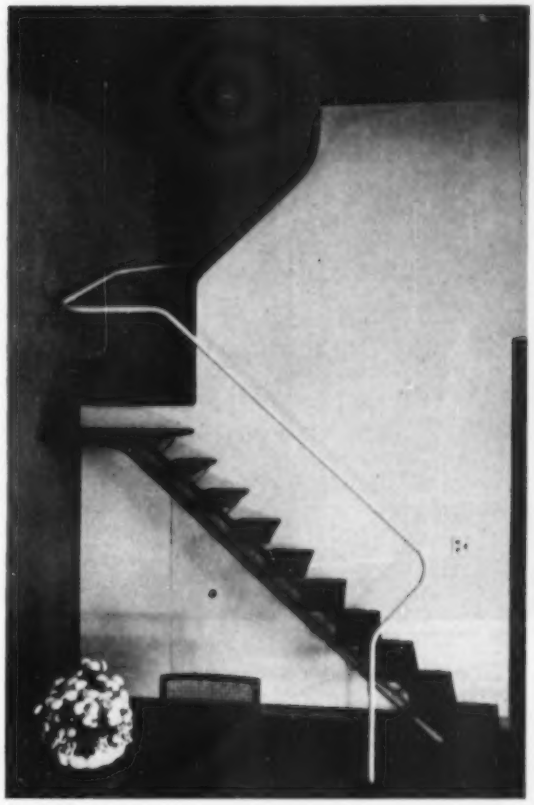
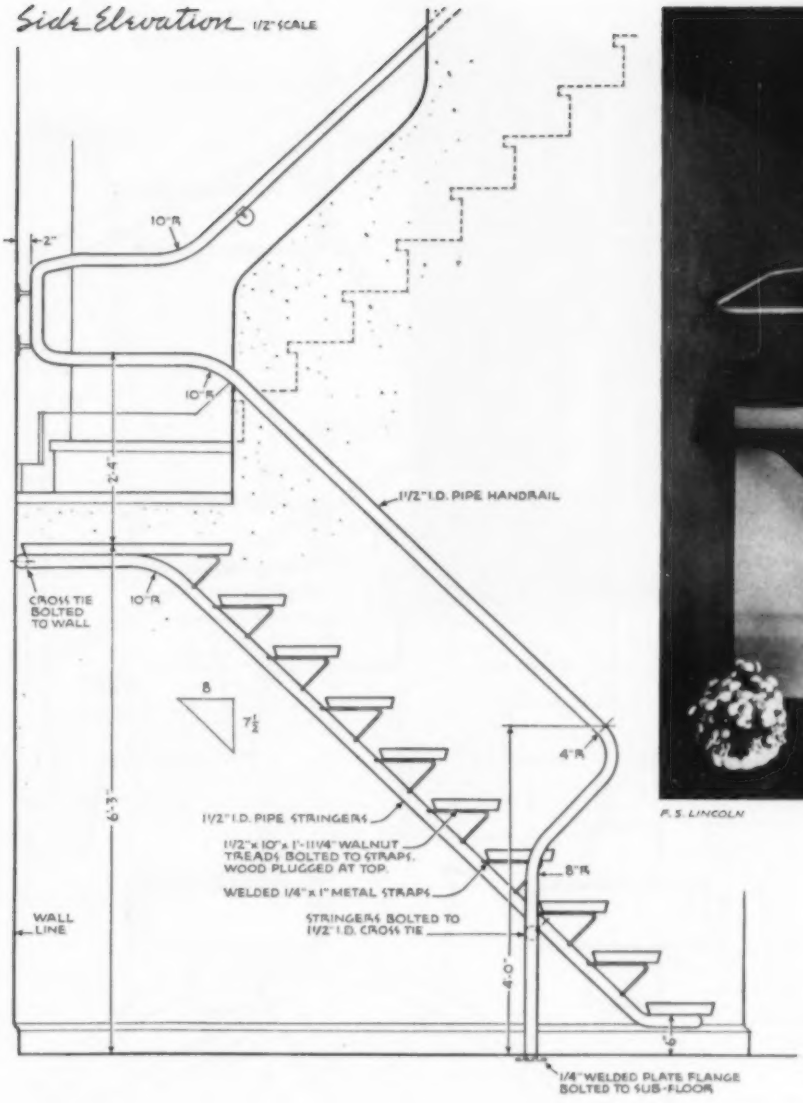
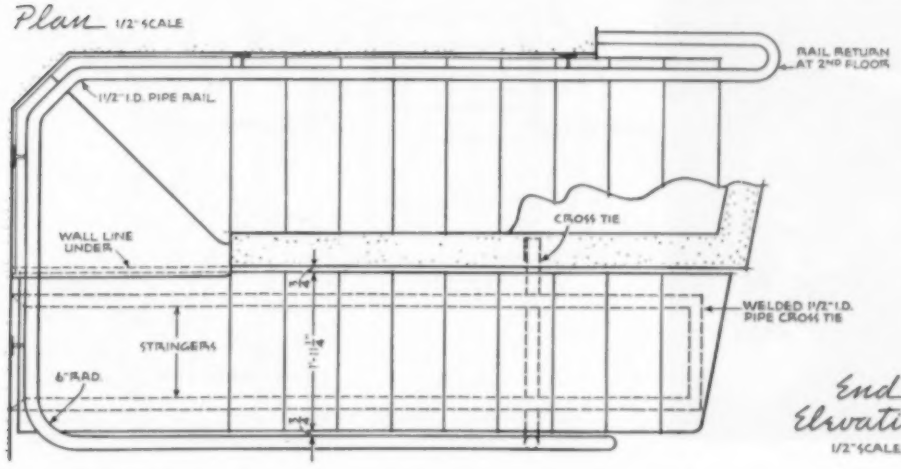
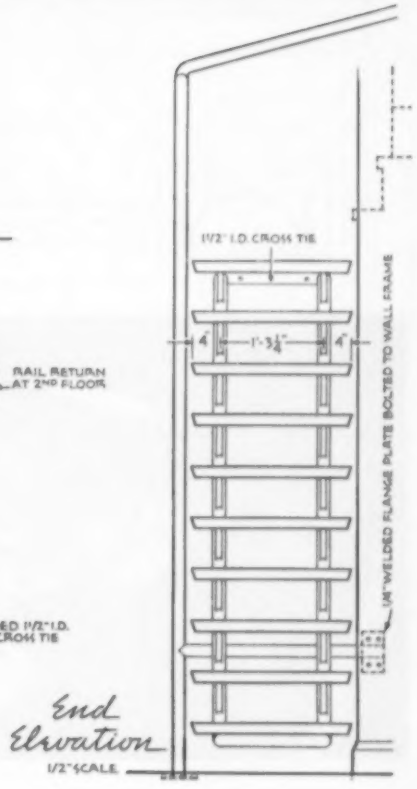


P. S. LINCOLN







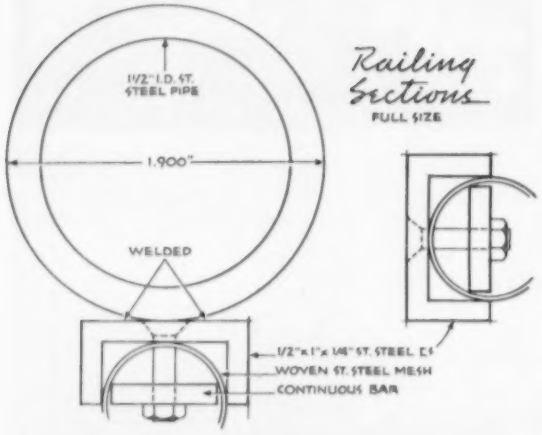
APARTMENT, New York, N. Y.

Joseph Aronson, Designer

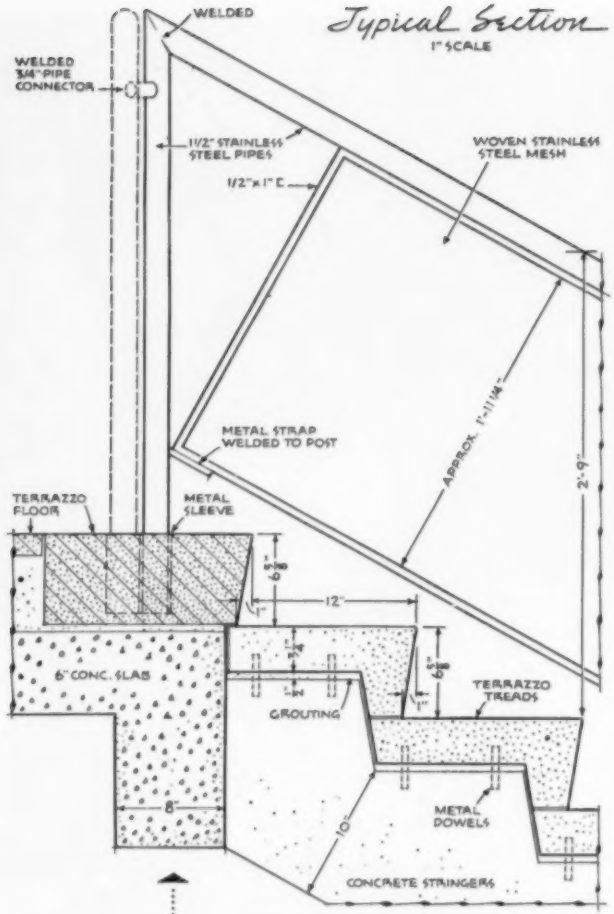
p/a selected detail

stairway

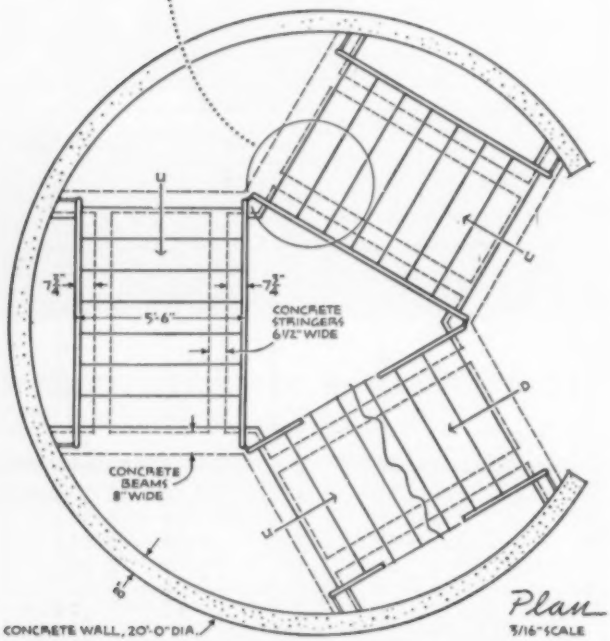
LIONEL FREEDMAN PHOTOS



Railing Sections
FULL SIZE



Typical Section
1" SCALE

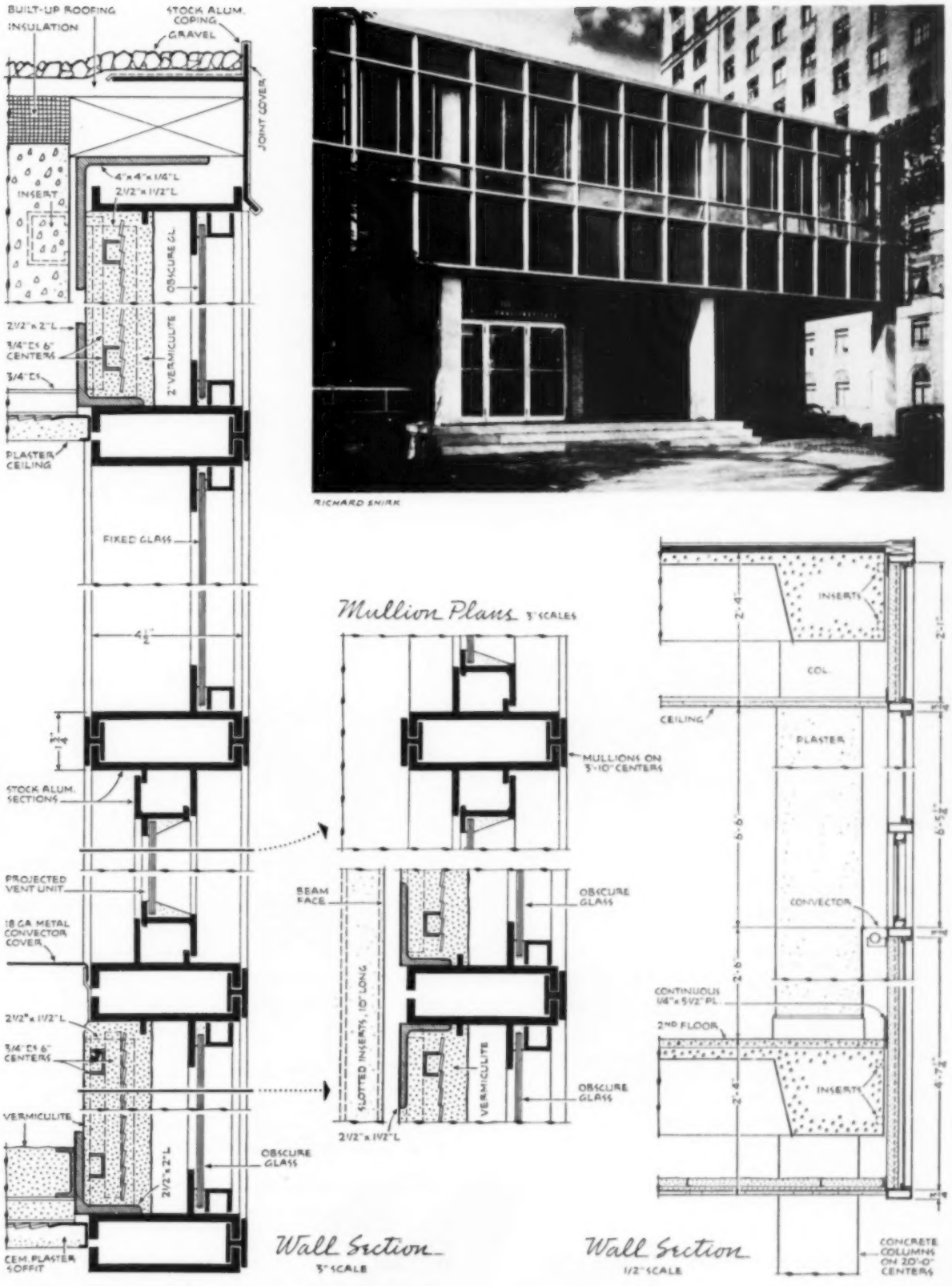


Plan
3/16" SCALE

ART GALLERY AND DESIGN CENTER, New Haven, Conn.
Douglas Orr-Louis I. Kahn, Associated Architects

window wall

RICHARD SHIRK



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The Blue Ridge *Securit** Interior Glass Door is a single piece of tempered glass, patterned on both sides. It is attractive in many settings. The glass goes well with other materials, and its neutral tone harmonizes with other colors. Being tempered, the *Securit* Door is toughened to take hard usage.

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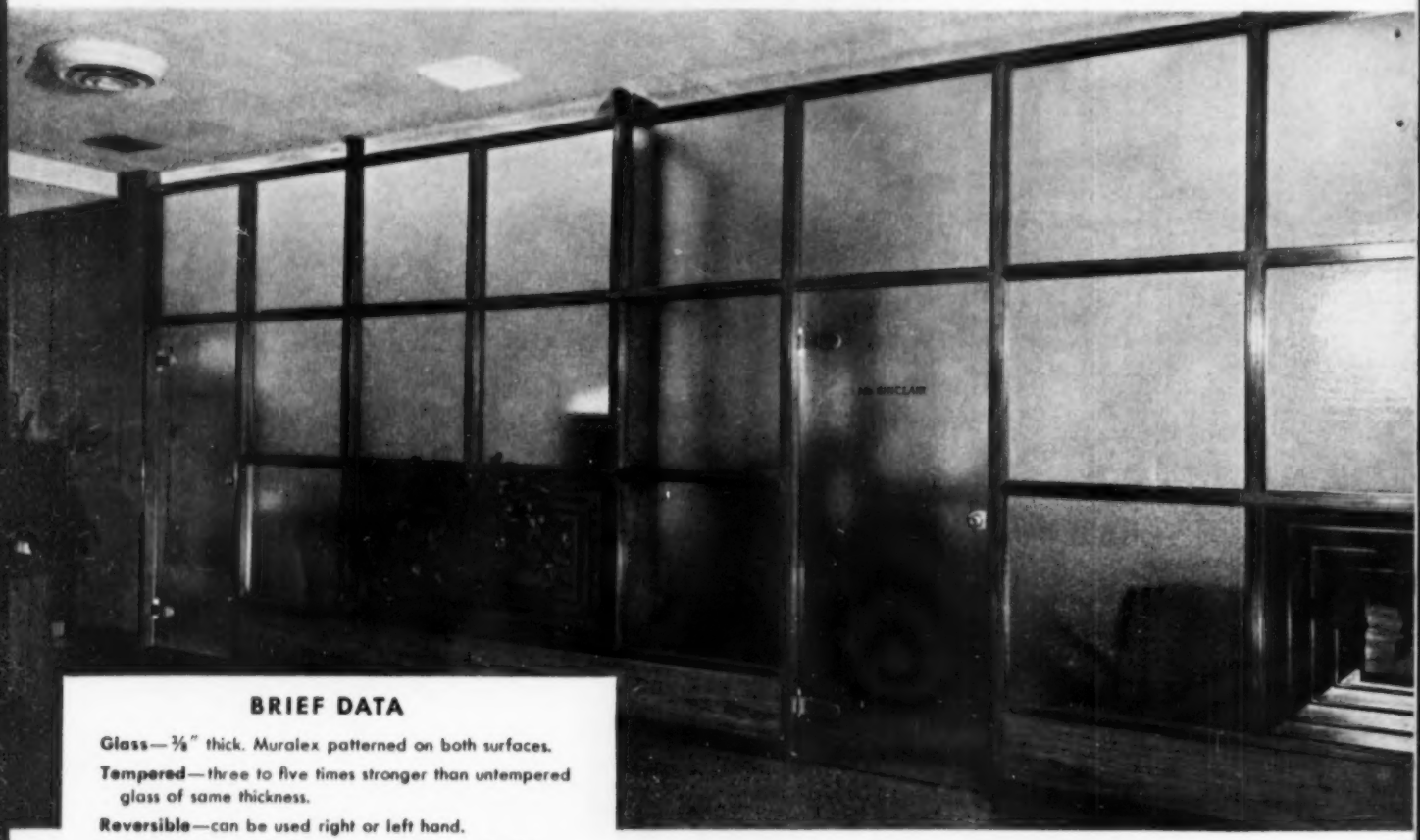
The cost compares favorably with that of high-quality doors of ordinary materials—and you save on installation and maintenance costs.

Your L·O·F Glass Distributor or Dealer will be glad to give you all the facts. Look for his name in phone book yellow pages, under "Glass". Or write us direct. **



Securit Doors are part of this wall of Muralex patterned glass in the offices of Bert Mills, Inc., St. Charles, Illinois. Architects: Burgess, Stevens & Purdy, Chicago.

BRIEF DATA

Glass—⅜" thick. Muralex patterned on both surfaces.

Tempered—three to five times stronger than untempered glass of same thickness.

Reversible—can be used right or left hand.

Standard Sizes—

2'6" x 6'8"	2'5 11/16" x 6'7 1/16"
2'8" x 6'8"	2'7 11/16" x 6'7 1/16"
3'0" x 6'8"	2'11 11/16" x 6'7 1/16"
3'0" x 7'0"	2'11 11/16" x 6'11 1/16"

Closers—when specified, the door can be shipped with a Sargent closer or prepared for use with an LCN concealed closer.

For more complete information, see the Securit Door insert in Sweet's Architectural File.

Patterned glass has many uses — Blue Ridge *Patterned Glass* offers both function and beauty for many places in offices, homes, stores and institutions. In partitions, for example . . . to lighten a hall . . . for distinctive cupboard doors . . . for lovely built-in furniture. Choose from linear, checkered and overall designs in plain, textured or *Satinol** finishes.

securit® L·O·F GLASS

INTERIOR GLASS DOORS

Libbey·Owens·Ford Glass Co., Dept. B-2284
608 Madison Avenue, Toledo 3, Ohio

Please send me your folder "Blue Ridge *Securit* Interior Glass Doors".

I would also like the booklet of ideas for using Blue Ridge *Patterned Glass* in ☐ homes ☐ other buildings. (Check one or both.)

NAME (PLEASE PRINT)_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

Page Beauchamp **churches**

Creating a spiritual atmosphere, the setting sympathetic to liturgical requirements of a particular religion or denomination, is the singular demand upon the designer of a church or temple interior. The design expression, in terms of style and precedent, is a continuing challenge, since the average church committee seems reluctant to accept anything new in religious structures although comparable advances in secular types of buildings are more generally understood and approved.

Worshipers who adhere to rituals that have remained virtually unchanged for centuries have regarded the cherished ancient architectural forms as somehow a necessity in churches and synagogues. Congregations not infrequently demand an exact copy of the old church, when commissioning an architect. The actual fear of a departure in design expression is sometimes based on an apprehension that change will discredit what was formerly accepted. With few exceptions, they resist the tendency to modify liturgical and ceremonial inheritance, or to reach for precepts and forms of worship more closely allied with new social patterns.

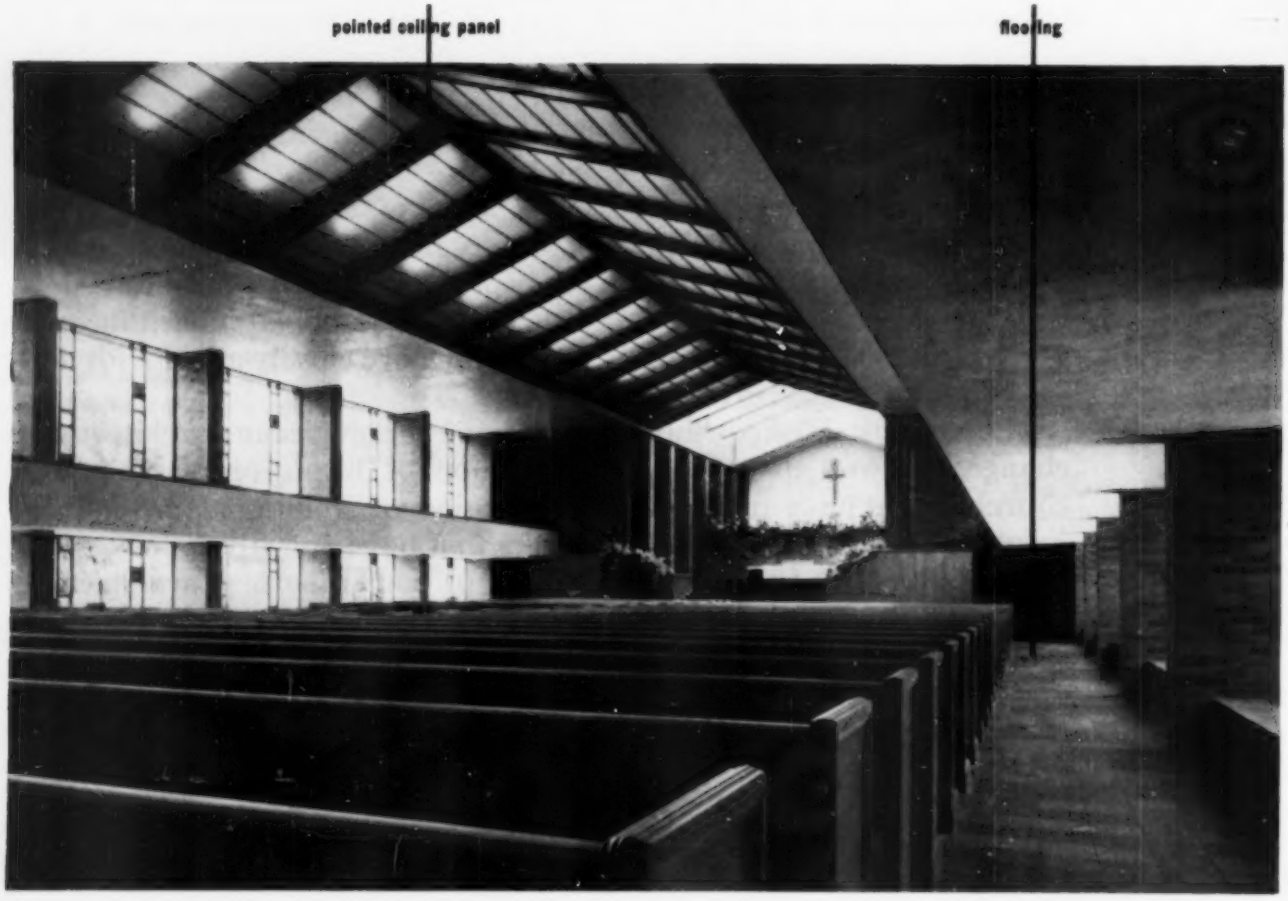
Those established churches that have accepted some architectural changes as well as moderated evolution of forms of worship, the churches that have undergone reformation of traditional pronouncements, and the new religions and cults that have appeared, more often are worshipping in structures of fresh, contemporary architecture character consonant with contemporary religious beliefs. The new freedom has resulted in a less pretentious expression of the spiritual atmosphere, unburdened by worn clichés or confining rules whose very purpose has long been forgotten.

churches

location | First Methodist Church, Midland, Michigan

architect | Alden B. Dow

The design of this church symbolically expresses growth—"growth beyond ourselves, beyond walls, beyond this earth, beyond time." Window walls on both sides and a skylight of plastic dispel the feeling of any confinement. The altar is done in utmost simplicity inspiring a feeling of openness and a desire to grow spiritually, unmarred by extraneous, confusing elements. A complete lack of pompousness and pretension creates an atmosphere of quiet, sympathetic to a spiritual atmosphere.



altar sky window

data

cabinetwork

Cabinetwork: comb grained oak/ Westover-Kamm, Bay City, Mich.

doors and windows

Doors: "Herculite"/ Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh 22, Pa.

Windows: custom design/ oak frame/ glass: Pittsburgh Plate Glass Co./ executed by Westover-Kamm.

furnishings

Pews: American Seating Co., 901 Broadway, N.W., Grand Rapids 4, Mich.

lighting

Nave Lighting: "Slimline"/ Sylvania Electric Products, Inc., 1740 Broadway, New York, N. Y.

Other Lighting: #155, Prylite/ Pryne & Co., Inc., 140 N. Towne Ave., Pomona, Calif./ #1001/ Lite Craft, 8 E. 36 St., New York 16, N. Y.

walls, ceiling, flooring

Walls: brick, wood, and glass, sand finished plaster.

Ceiling: nave ceiling, wood, plaster center/ leveling, sand finished plaster.

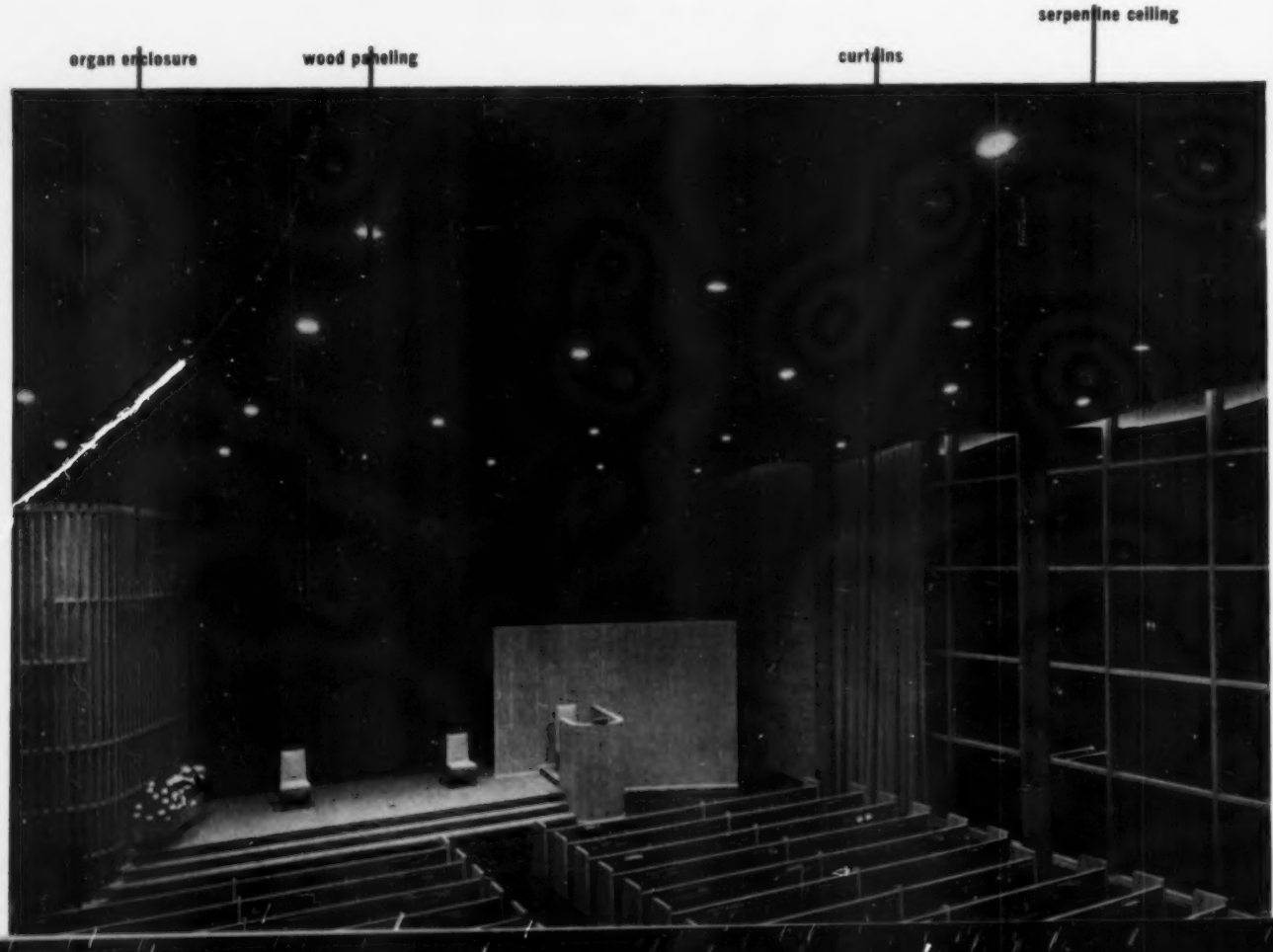
Flooring: Narthex brick and carpeting/ nave: cork tile/ Armstrong Cork Co., Lancaster, Pa./ center aisle, green carpet.

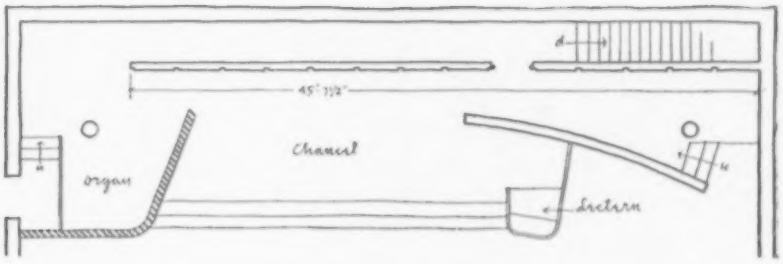
churches

location	First Unitarian Church, Minneapolis, Minnesota
architects	Thorshov & Cerny
interior designer	Newton E. Griffith

Probably the best way to describe the design theory of this church is to quote the architects' expression: "We have attempted to capture the spirit of Unitarianism in the design of the Main Auditorium by contrasting the simple box shape, representative of the Universe, with the undulating ceiling, used to represent the confines of human life within this shell. The ceiling wraps down visually to enfold the speaker who is the interpreter of human relations within the Universe. The large window to the north also expands the limits of the Auditorium and includes Nature in the perspective."

Coloring is carefully planned to be soft and harmonious. Sandalwood painted plaster walls blend with brick surfaces. The ceiling is bluish-gray supported by contrasting, terra cotta colored columns to accentuate the floating quality of the ceiling. Walnut paneling is used to focus attention and be a background for the speaker's rostrum. Flooring is brown tile mottled with terra cotta, while the draperies and carpeting are beige.





data

cabinetwork

All cabinetwork: designed by architect/ executed by Aaron Carlson Co., 1505 Central Ave., Minneapolis, Minn.

doors and windows

Doors: "Narrow Line" series/ Kawneer Company, 1105 Front St., Niles, Mich.

Windows: double hung, Series 2008, #2439, #3451/ Cupples Products Corp., 2650 Hanley Rd., Maplewood, St. Louis, Mo.

Fixed Windows: designed by architect/ extruded-aluminum frame/ executed by Crown Iron Works, Minneapolis, Minn.

furnishings and fabrics

Pews: #50 Pew body/ Manitowoc Church Furniture Co., Waukesha, Wis.

Drapery Fabric: mohair casement cloth/ Goodall Fabrics Inc., 525 Madison Ave., New York 22, N. Y.

lighting

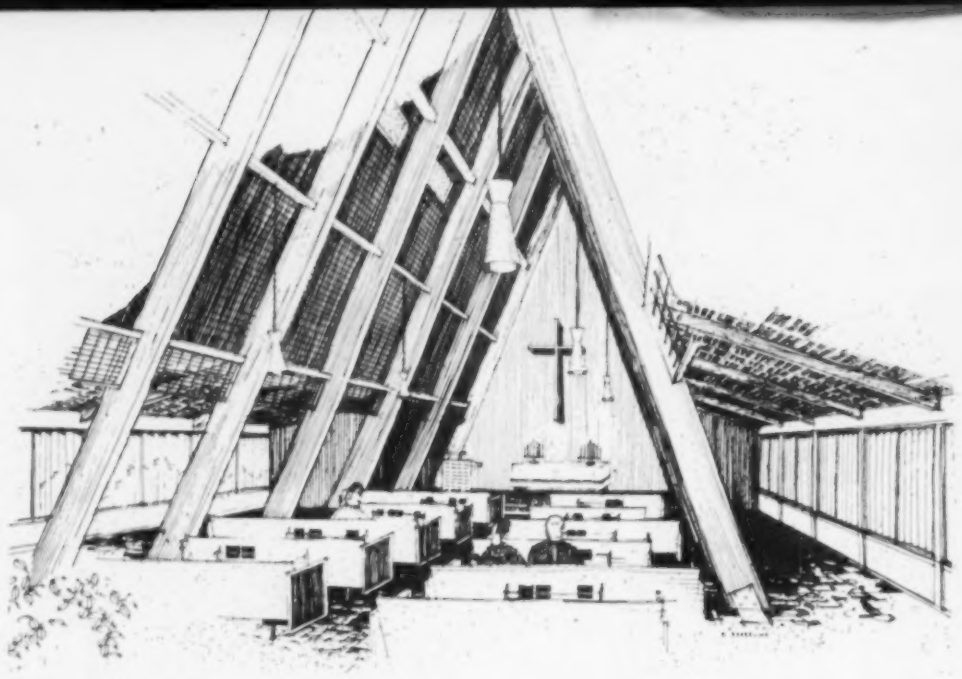
Recessed Spots: General Lighting Company, 1527 Charlotte St., New York, N. Y.

walls, ceiling, flooring

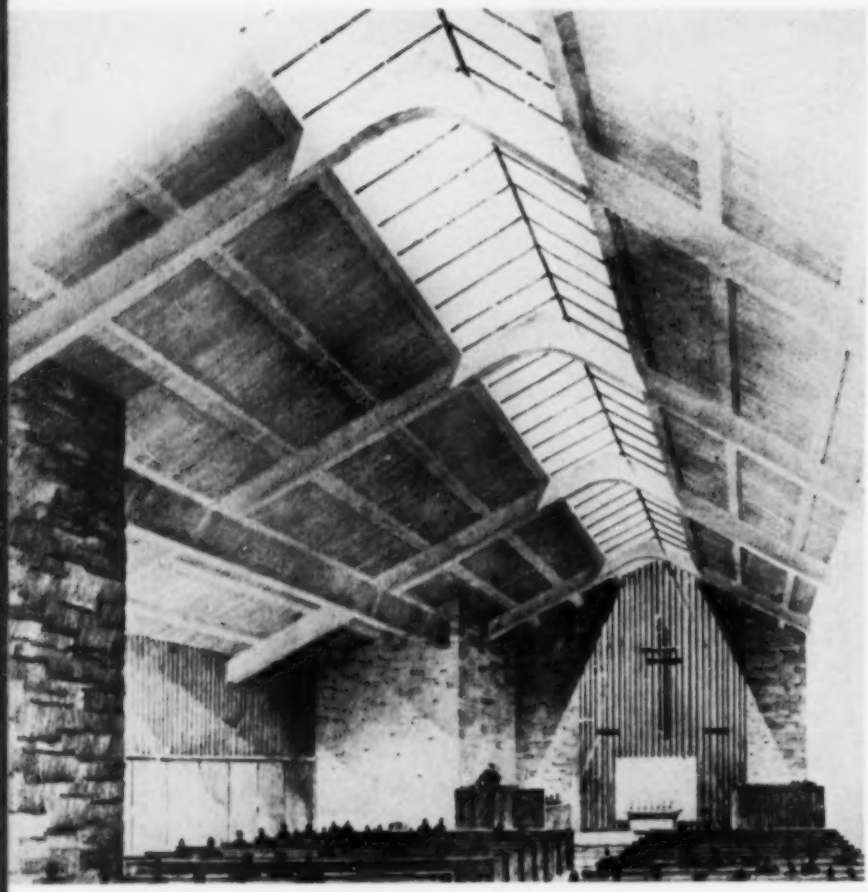
Walls, Ceiling: painted plaster

Flooring: asphalt tile/ Kentile, Inc., 58 Second Ave., Brooklyn, N. Y.

churches

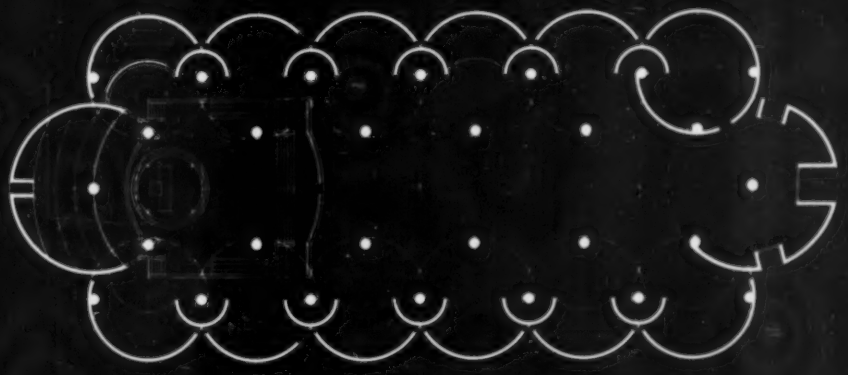


In the design (right) *for a memorial chapel, by Compton & Pierce, Architects, Cambridge, Mass., the combination of fir planking serving as ceiling, windows with fixed louvered shutters, and shadowed, low illumination create a mysterious and indefinite atmosphere. In contrast, the wall behind the altar is of lighter hemlock, and a long, narrow skylight behind the last beam casts light on the end wall and altar. The Chapel is small, accommodating a maximum of 60 persons. Its design and materials reflect a modest budget.*

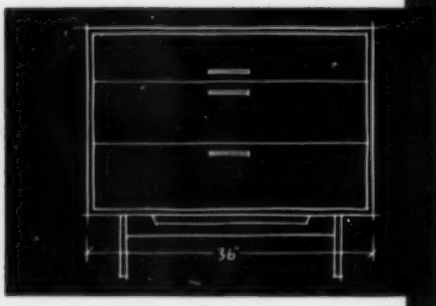


The stone walls of this church (left), *designed by Carroll, Grisdale & Van Alen, Architects, Philadelphia, Pa., have no windows to interrupt the unbroken line. A continuous skylight along the ridge of the roof and a glass front admit light. A mahogany wood screen from floor to roof hides the organ and an exhaust fan. Flooring is of asphalt tile with carpeting in the aisles. Custom-made pews in a hand-rubbed walnut blend with the gray-stained wood of the purlins and wood planks of the roof structure. Here, again, interest is centered on the altar, and no confusing elements distract the eye.*

A proposed cathedral (acrosspage) *by Oscar Nitzchke, Architect, New York, N. Y. Reinforced concrete was chosen for earthquake resistance. Colored strips of glass, set at forty-five-degree angles to the columns, form the walls. The small circular members at the base are chapels. The floor plan shows the unusual design. Here the interior design is the architecture.*



p/a interior design products



New Cabinet Group: Group "R"/ nine 36" and 54" cabinets in walnut or birch, bases of 28", 39", 54", or 72" length/ designed for bedroom, dining room, living room, or office/ includes case for radio, phonograph, or television equipment/ tambour fronts of interlocking plastic strips/ drawers on metal extension slides have brass pulls/ **Jens Risom Design, Inc., 49 E. 53 St., New York 22, N. Y.**

This "**Kalistron**" upholstery and wall covering has been on the job 5 years . . . and there it is, fresh and bright as new.

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Beautiful, durable, cleanable wall covering and upholstery . . .

Here is a material that matches style with service. Think of the opportunities for hotels, restaurants, hospitals . . . for any room where heavy traffic and hard use make durability and easy maintenance just as vitally important as beauty.

It's material designed for the job—a clear sheet of KRENE, with rich, brilliant colors fused to the underside. Thus, the surface takes all the wear and protects the color beneath.

It's thorough protection. KRENE is always tough and flexible. It resists scratches, oil, grease, cleansers, foods, acids, alkalies, alcohol. It makes a smooth, tough surface. Dirt wipes right off.

Specify wall covering and upholstery material made of KRENE. It provides a beautiful combination of richness, durability and maintenance economy.

This restaurant features wall covering and upholstery of "Kalistron," made of KRENE by **Kalistron, Inc., Division of United States Plywood Corporation,** New York 17, N. Y.

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.

A SIZE FOR EVERY OPENING!

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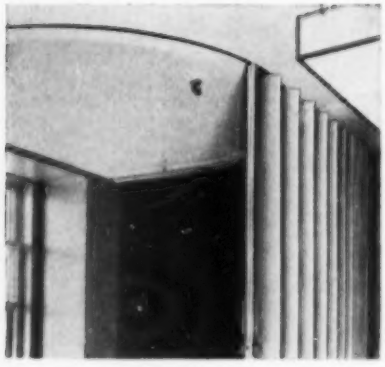
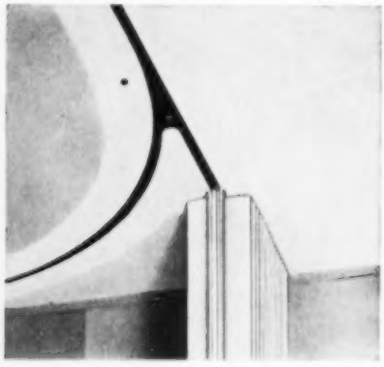
FOLDOOR®

THE DOOR WITH THE CORNICE ON TOP

A TYPE FOR EVERY NEED!

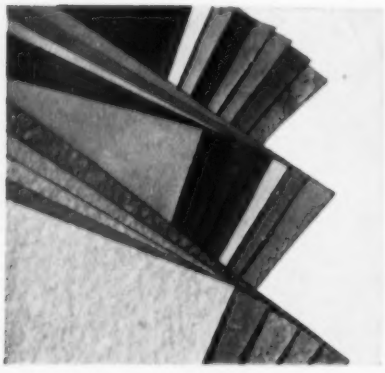


Curved FOLDOORS are often used to follow the architectural contours of a room. A smart installation, it folds neatly into a graceful curve and operates just as smoothly on a curved track as on a straight one.

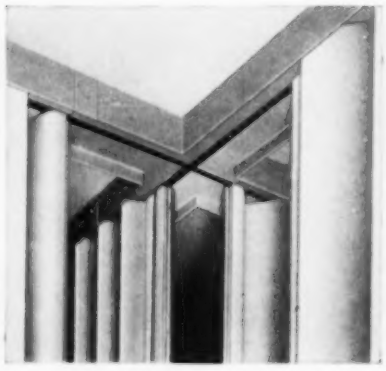


The FOLDOOR **Glide Switch** allows graceful and versatile use of the door as well as out-of-the-way storage. Designed exclusively for curved track and recessed-type construction. Safety bar stops door from slipping off.

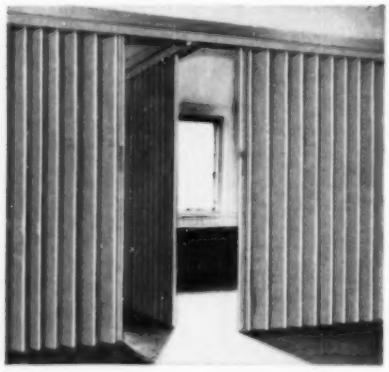
The FOLDOOR **Pivot Switch** permits door to be switched to a wall stacking position. Provides unusual flexibility of room arrangement and convenient storage of door. Safety features prevent door from leaving track.



Cloth-Textured vinyl-coated fabrics are a FOLDOOR exclusive! Developed to meet today's trend toward subdued colors, they combine the softness and hang of draperies with the washability and strength of plastic coverings.



FOLDOOR'S **Four-Way** arrangement divides a large room into four smaller ones. Use of floating post permits any combination of the four doors. A crossover switch enables space to be divided into two or three rooms rather than four.



A Three-Way FOLDOOR installation is primarily used to break a room into ½, ¼ and ¼. This application allows many different divisions of a room to accommodate groups that fluctuate in size. Ideal for church, school or funeral home.

THE NEW LEADER IN FOLDING DOOR QUALITY!

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p/a interior design products

Seat with Integral Table: Group "U"/ also available in double- or triple-width seat/ sculptured wood frame in walnut or birch, or structural aluminum base/ upholstery of rubberized hair, foam rubber, and No-Sag springs/ table may be used with single chair on double base, with double seat on triple base, or between two single seats on triple base/ **Jens Risom Design, Inc., 49 E. 53 St., New York 22, N. Y.**

Metal Screen: Matrix-weave stainless steel/ crocheted mesh shown here used as panel on a stairway/ **Hewitt-Robins Incorporated, 666 Glenbrook Rd., Stamford, Conn.**

Chair: #120-L/ black wrought-iron frame with leather in natural, black, white, or red-top-grain cowhide/ seat laced with nylon cord/ 31" w. x 27"d. x 29-½" h./ designed by Norman Cherner/ **retail:** $59.70/ **Konwiser, Inc., 39 W. 17 St., New York, N. Y.**

Chairs: #MS 901/ with solid-bronze, polished-aluminum, or black-steel frame/ designed to use in multiple units for a variety of seating arrangements/ designed by William Armbruster/ **Edgewood Furniture Company, Inc., 334 E. 75 St., New York, N. Y.**

Alcoa Building, Pittsburgh, Pa. *Harrison & Abramovitz, Architects*

not 10%, Mr. Zeckendorf! 2% is plenty!

We agree with Mr. Zeckendorf that it's worth 10% of a job to achieve the distinction that enables the initial 90% to sell itself.* But if you can get the effect with less than 2% why spend more? The thousands of feet of beautiful marble used in the Alcoa Building in Pittsburgh actually cost only 1.7% of the total construction cost.

And that is the story of marble. It does two big things for every construction job, whether it's new building or remodeling. *First*, it *sells* the job, as no other material can: sells it to the owner, to the tenants, to the public. Second, it *completes* the job, in beauty, with economy, and for long years of low-cost service.

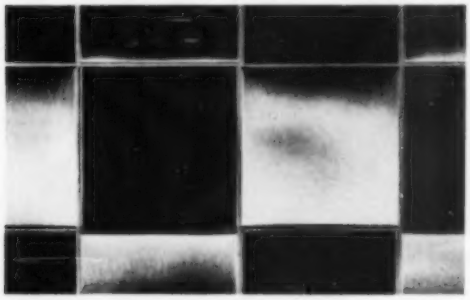
Literature Available FREE

"Proof that Marble costs less . . ."
"Marble in the Bank"
"Marble Forecast, 1953-1954"

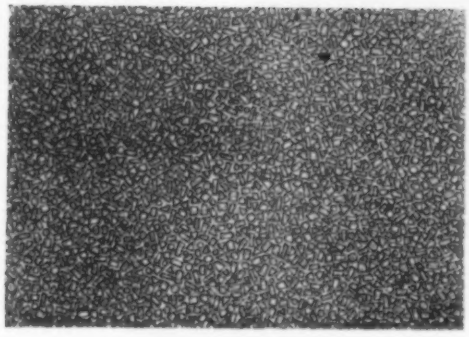
MARBLE MIA INSTITUTE OF AMERICA, INC.
108 FORSTER AVENUE MOUNT VERNON, NEW YORK

*As discussed in Architectural Forum, June, 1953, pg 151 by William Zeckendorf, Pres., Webb & Knapp, Realtors.

Ceiling Diffuser: #E-1/ designed primarily for flush mounting on exposed ductwork/ sponge rubber gasket forms a seal/ accessories: opposed bladed dampers, splitter dampers, equalizing deflectors, radial deflectors, butterfly dampers/ **W. R. Carnes Company, Verona, Wis.**

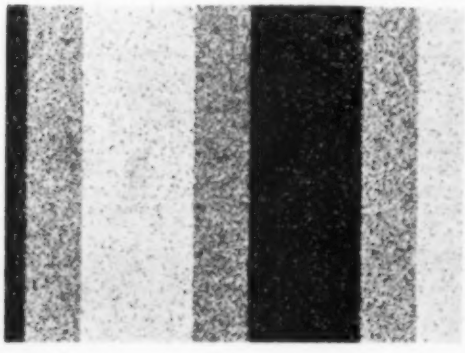


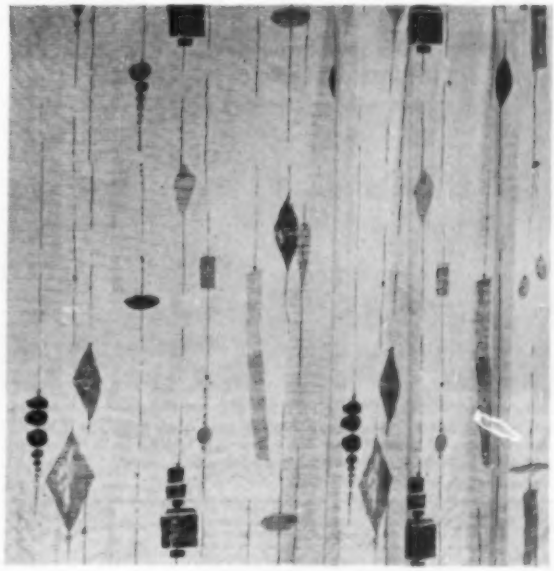
Copper Tile: synthetic-enamel surface makes it tarnish-proof/ recommended for use in conjunction with copper-hooded fireplaces or in kitchens where other copper accessories are used/ **retail:** $1.50 a sq. ft. (including mastic)/ **Vikon Tile Corporation, Washington, N. J.**



Laminated Plastic: "Geometry"/ random pattern of geometric shapes in one color over a shadow pattern of similar shapes in another color/ available in blue, yellow, green, and red with gray on white ground, or blue and brown on gray ground/ color-co-ordinated with existing hard-surface floor coverings/ for use in kitchens or bathrooms/ designed by Norman Hansen and Mary Bowling/ **Parkwood Laminates Inc., 24 Water St., Wakefield, Mass.**

Inlaid Plastic Flooring: "Decoresq Corlon"/ textured panel effect with bands of alternating color/ black, gray, and white; three shades of green; three shades of brown/ width, 2 yds./ **Armstrong Cork Company, Lancaster, Pa.**





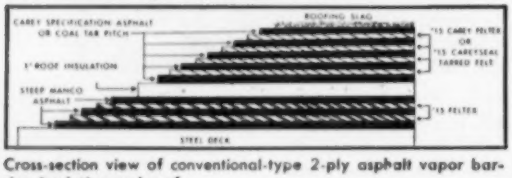
Fabric: "Jingle Jangle"/ hand-printed sheer/woven with Fortisan warp/ 49" wide/ available in four colorings/ **retail:** $6.75 a yd./ **Cheney, Greeff & Co. Inc., 4 E. 53 St., New York, N. Y.**

Carey announces another great

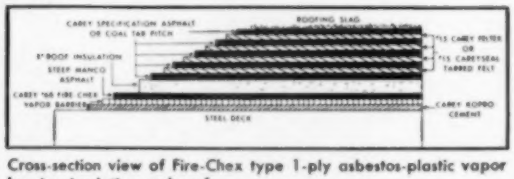
FIRE-CHEX

At the Carey Research Laboratories, this fire test of a conventional-vapor seal, with insulation and built-up roofing over steel deck, showed the dripping of asphalt from the vapor seal igniting as 1800° of heat builds up under the roof construction and melted bitumen flows through the joints in the deck.

Fire test of conventional-type built-up roof with new *Fire-Chex 1-ply Vapor Barrier* over the steel deck (see diagram). Here you'll note a *complete* absence of any dripping material and only slight burning of gases. Practically no fuel is contributed to the fire by vapor barrier.



Cross-section view of conventional-type 2-ply asphalt vapor barrier, insulation and roof.



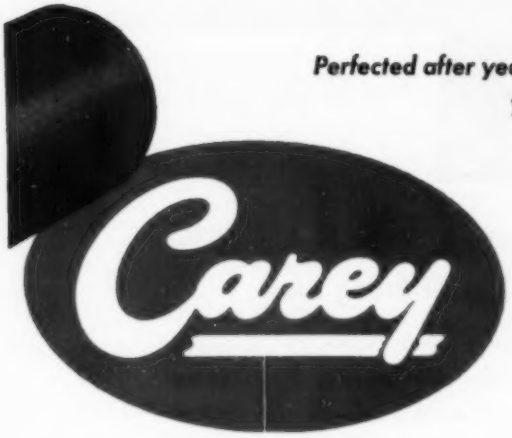
Cross-section view of Fire-Chex type 1-ply asbestos-plastic vapor barrier, insulation and roof.

achievement in Fire Protection...

VAPOR BARRIER

for built-up roofs

Perfected after years of research and testing—now ready to help you plan buildings with a new all-time high in fire safety!



Quick Facts About

Fire-Chex Vapor Barrier

MATERIAL REQUIRED FOR ONE SQUARE OF ROOF AREA

1 roll Fire-Chex Vapor Barrier—
weight approximately 60 lbs. per 114 square feet:
size 38 feet long, 36 inches wide
1 gallon Kopro Cement

Specify Fire-Chex asbestos-plastic vapor barrier for built-up roofs. Remove all doubt about fire-safety. Fire-Chex vapor barrier does not release excessive combustible gases and melting asphalt.

In Carey Fire-Chex, you have a vapor barrier that does not contribute to fire or cause it to spread. Even when installed over a standard steel deck that's heated red hot, Fire-Chex remains intact. Does not release melting asphalt and excessive gases.

And here's more good news. Fire-Chex costs only a few cents more per square applied than hazardous, conventional-type vapor barriers. You can specify its priceless protection within your client's budget.

Mail the coupon below for complete specification details, or to have a Carey Industrial Sales Engineer call without obligation.

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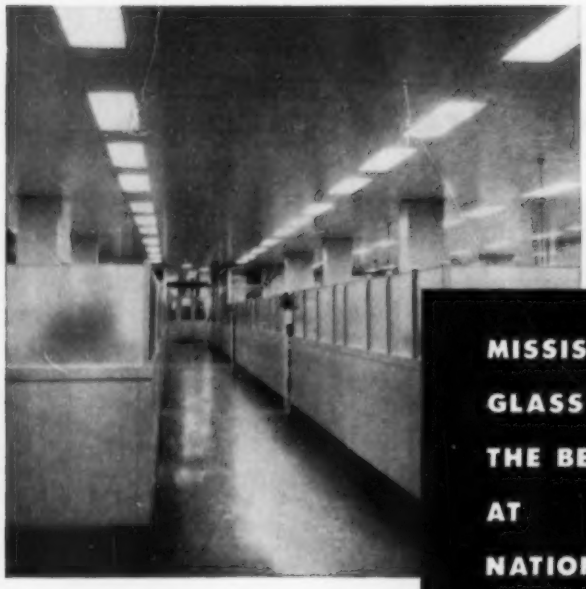

MISSISSIPPI GLASS RINGS THE BELL AT NATIONAL CASH REGISTER

10,000 sq. ft. of Mississippi figured glass glazed in Mill's Movable Partitions. Glazing by George Behm & Sons, Dayton, Ohio.

"Borrowed Light" is Added to Advantages of Moveable Walls by Installation of Translucent, Light Diffusing Glass

National Cash Register Company long recognized as a model of efficiency and management, makes walls do double duty and gain beauty. Office space flexibility is assured by the use of Mill's movable walls . . . while the added advantages of borrowed light provided by glass promote efficiency in present or future arrangements.

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★ *Editor's Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

air and temperature control

1-99. Halstead & Mitchell Commercial Cooling Towers (WT & CT-583), 16-p. catalog describing operating characteristics of 20 standard cooling towers for commercial applications. Table of cooling tower nominal ratings for both 78° and 75° wet-bulb temperatures, outlet water temperature plotted against wet-bulb temperature, tower capacity plotted against wet-bulb temperature, layouts for year-round operation and inside use, cutaway views and line drawings detailing mechanical features of cooling tower construction. Halstead & Mitchell, Bessemer Bldg., Pittsburgh, Pa.

Three 4-p. catalogs covering ceiling-type air diffusers, sidewall air diffusers, and ceiling air-supply outlets designed for evaporative cooling systems. Full-page selection charts, dimensional diagrams, and photos of models. Air-Factors, Inc., Monrovia, Calif.:

1-100. B60 Ceiling Air Diffusers
1-101. LCF Sidewall Air Diffusers
1-102. ECCO Ceiling Air Supply Outlets

1-103. The Design of Aluminum Duct Systems by F. W. Hutchinson, 32-p. booklet giving data on friction losses in air-conditioning duct systems based on research made by Hutchinson. Two friction loss charts based on aluminum roughness characteristics identical in form to those published for galvanized iron in ASHVE Guide, graphical solutions for determining friction losses through fittings, charts for calculating required air volumes and rates of heat loss for ducts, and other information. Kaiser Aluminum & Chemical Sales Inc., 1924 Broadway, Oakland, Calif.

1-104. Packaged Air Conditioner, AIA 30-F-2 (77-5; 81-2), 6-p. bulletin describing 1954 line of packaged air conditioners designed for store, office, residential, restaurant, and other applications. Construction details, complete specifications, performance ratings of units available in 2, 3, 5, 7½, 10, and 15 hp sizes. Charts, drawings, and photos. United States Air Conditioning Corp., Como Ave., S. E. at 33rd, Minneapolis 14, Minn.

1-105. Westinghouse Heating and Ventilating Units . . . Ventilating Fan Units (1620), 40-p. catalog on heating and ventilating units with air volumes ranging from 1,200 cfm to 23,000 cfm, heating capacities from 100,000 Btu to 2,500,000 Btu. Five data sections—descriptive, performance, layout, engineering, and service. Step-by-step procedure for selecting unit size with several hypothetical problems calculated; typical specifications; construction details. Westinghouse Electric Corp., Sturtevant Div., Dept. T-126, Hyde Park, Boston 36, Mass.

construction

2-114. Braun Architectural Metals and Supplies (55), AIA 15, 76-p. catalog describing stock products in steel, malleable iron, aluminum, and architectural bronze including bars and shapes, pipe and tubing, fastenings, architectural molding and trim, door sections, window and store front sections, and handrails. Illustrations of available models, dimensions, and weights. J. G. Braun Co., 537 W. 35 St., New York, N. Y.

2-115. Aerofill: Lightweight Thermal-Insulating Aerated Concrete, 4-p. folder discussing features of concrete made with portland cement, sand, and air cells for roof fill, floor fill, nonload-bearing walls, and insulation. Description of properties, including density, compressive strength, and thermal conductivity; photos showing mechanical aeration process; list of other applications. Cellular Products Co., 1238 Atlantic Blvd., Los Angeles 22, Calif.

2-116. Press-Molded Structoglas, AIA 26-A-9 (SL-46), 8-p. booklet giving information on polyester glass-fiber building panels. Description of material, recommended applications, standard sheet specifications, loading on maximum span, fabrication and framing details, accessories, moldings, and closures. Photos, charts, and drawings. International Molded Plastics, Inc., Structoglas Div., 4387 W. 35 St., Cleveland 9, Ohio.

2-117. Reynolds Architectural Aluminum: 1954, AIA 15 (B2-12), 16 p. brochure describing architectural advantages of aluminum and giving analysis of aluminum's main points for such applications as doors, windows, store fronts, awnings, spandrels, siding, and curtain walls. Thresholds, sills and stools, railings, gravel stops, and copings illustrated with cross sectional details. Other items shown: square and rectangular bar, rod, shapes, structurals, sheet and plate, and extrusions. Short-form specification. Reynolds Metal Co., Desk PR, 2500 S. Third St., Louisville 1, Ky.

2-118. Weldwood Texture One-Eleven, AIA 19-F (54-10), 4-p. folder illustrating new exterior fir plywood available in two patterns. Design ideas using plywood by Architect Alan E. Liddle, Tacoma, Wash.; information on finishing and application; packaging data; specification data. Douglas Fir Plywood Assn., Tacoma, Wash.

Two folders on poured-in-place vermiculite concrete over vented steel roof decks and as roof decking over paper-backed wire lath. Recommended mix, density, compressive strength, indentation resistance, coefficient of heat transmission, and other data; detailed specifications; and suggested roofing details. Alternate folder on application over paper-backed wire lath for areas where temperature during pouring and curing is 50° or above. Vermiculite Institute, 208 S. La Salle St., Chicago 4, Ill.:

2-119. Poured-In-Place Vermiculite Concrete Over Vented Steel Roof Decks, AIA 37-B-2

2-120. Poured-In-Place Vermiculite Concrete Roof Decks Over Paper-Backed Wire Lath, AIA 4-E-13

2-121. Architectural Woodwork: Cabinet Work, AIA 19-E (2), 8-p. brochure showing work of four architectural firms with comments by the architects on cabinet work designed and data on kinds of wood used and applied finish. Also, specification guide for selection of hardwoods

(Continued on page 143)

PROGRESSIVE ARCHITECTURE, 430 Park Avenue, New York 22, N. Y. I should like a copy of each piece of Manufacturers' Literature circled.

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1-103	2-119	3-96	8-54
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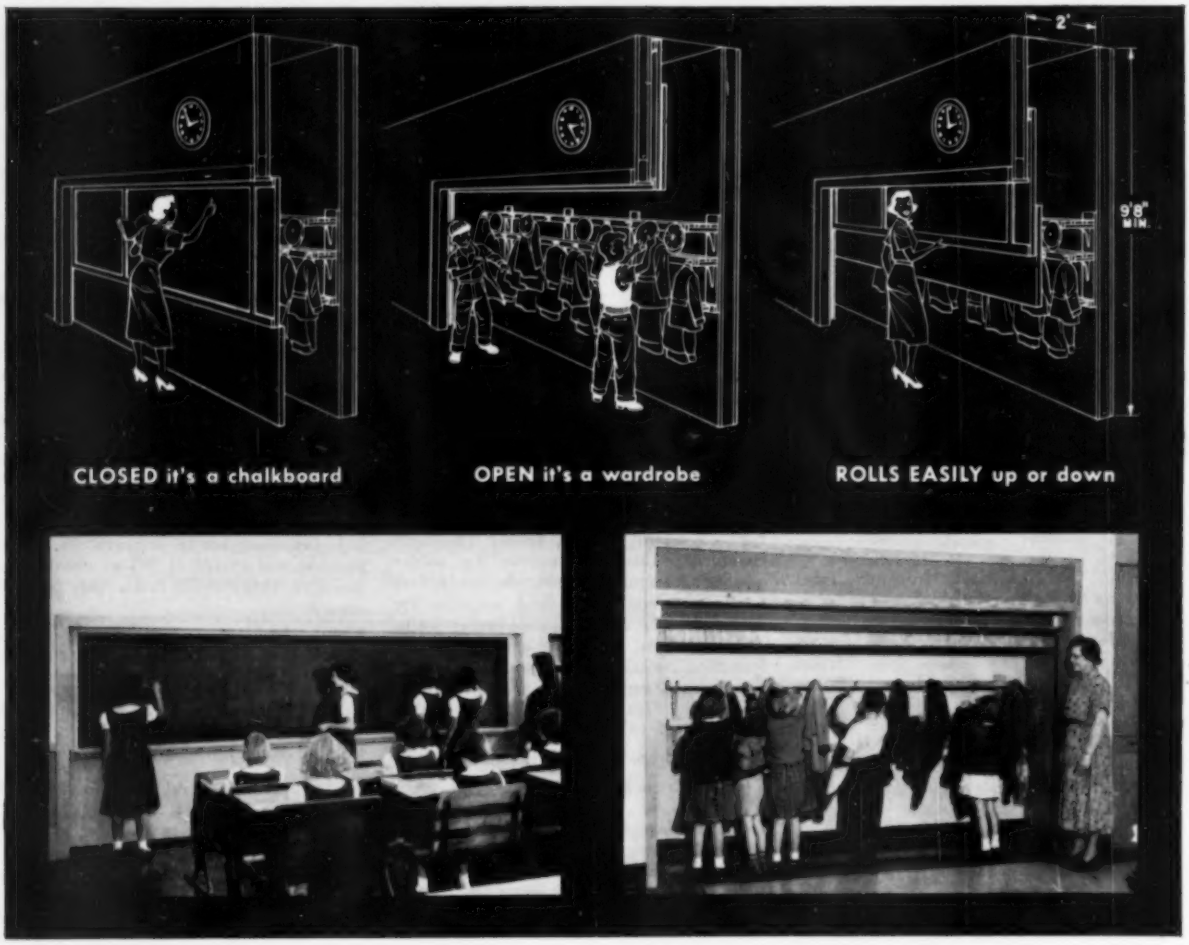

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INSTALLATIONS EVERYWHERE acclaim the practical advantages of WARDROBEdoor. For example, in the East there are installations in Marion, Somerset, Mass.; Hoboken, N. J.; Heuvelton, New Rochelle, Niskayuma, No. Tonawanda, Rochester, Romulus, Skaneateles, Snyder, Utica, N. Y.; Richmond, Va.; So. Charleston, W. Va.; in the South at LaGrange, Ga.; Louisville, Ky.; in the Midwest at Cantrall, Chicago, Fancy Prairie, Rockford, Streator, Yorktown, Illinois; Hobart, Ind.; Mt. Pleasant, Iowa; Benton Harbor, Dearborn, So. Haven, Wells, Mich.; Lakefield, New Prague, Watertown, Minn.; Lincoln, Nebraska; Minot, No. Dakota; Columbus, London, Ohio; Cudahy, Wisc.; in the West at Sanbruno, Calif.; Missoula, Mont.; Forest Grove, Ore. Complete list of schools and architects on request.

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*All tests made with panels under load. Ratings are applicable to load-bearing partitions (and also to non-load-bearing).
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NOTE 1. 6d c.c. 13 ga. flat-head 1⅝" long for first layer; 8d c.c. 11½ ga. flat-head 2⅜" long for second layer; nailing 7" o.c. for both layers.

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(Continued from page 139)

and softwoods for cabinet work and tables listing standard thicknesses, widths, and cutting lengths for millwork factory lumber pertaining to hardwood and softwood. Architectural Woodwork Institute, 332 S. Michigan Ave., Chicago 4, Ill.

doors and windows

3-91. Har-Vey Rolling Door Hardware, 8-p. bulletin illustrating hardware available for 70 lb, 100 lb, and 200 lb sliding doors, including single-pocket, two and three by-passing, and bi-parting types. Detailed data, drawings, and photos. American Screen Products Co., 807 N. W. 20 St., Miami, Fla.

3-92. Bayley Projected Windows and Projected Ribbon Windows, 20-p. catalog on aluminum projected and projected ribbon window units. Features, specifications, full-size sections, window dimensions, glass sizes, installation details, illustration of projected windows in panel-wall arrangement. Photos, drawings, and charts. The William Bayley Co., Springfield, Ohio.

3-93. Lupton Aluminum Windows, Steel Windows and Doors, AIA 16-E, 50-p. catalog describing line of aluminum and steel windows and steel doors. Available aluminum units: master windows (projected, combination, and casement types), curtain-wall building panels, awning windows, double-hung windows, residence casements, outside sills, and thresholds. Available steel units: residence casements, casement doors, basement and utility windows, architectural projected windows, industrial windows, mechanical operators, industrial doors, and windows for glass block. Standard types and sizes, specifications, illustrations. Michael Flynn Mfg. Co., Philadelphia 24, Pa.

3-94. Doors: Stock Ponderosa Pine and Hardwood Veneered, 16-p brochure containing Commercial Standard CS120-53 for ponderosa pine doors and Commercial Standard CS 171-50 relating to hardwood veneered doors. General requirements, grading designs, and layouts, inspection, labeling, standard door guarantee. Wood parts specifications, sizes, drawings showing various designs available. National Woodwork Manufacturers Assn., 332 S. Michigan Ave., Chicago 4, Ill.

3-95. The Peelle Company: Industrial and Commercial Door Service, 8-p. brochure describing line of doors for hangars, warehouses, factories, schools, terminals, mills, hospitals, and garages. Types illustrated include single- and multi-section vertical slide doors, vertical and horizontal sliding entrance door operators, single- and multi-section horizontal slide doors, specially engineered doors for unusual door openings, and motorized and manual hangar doors. The Peelle Company, 47 Stewart Ave., Brooklyn 37, N. Y.

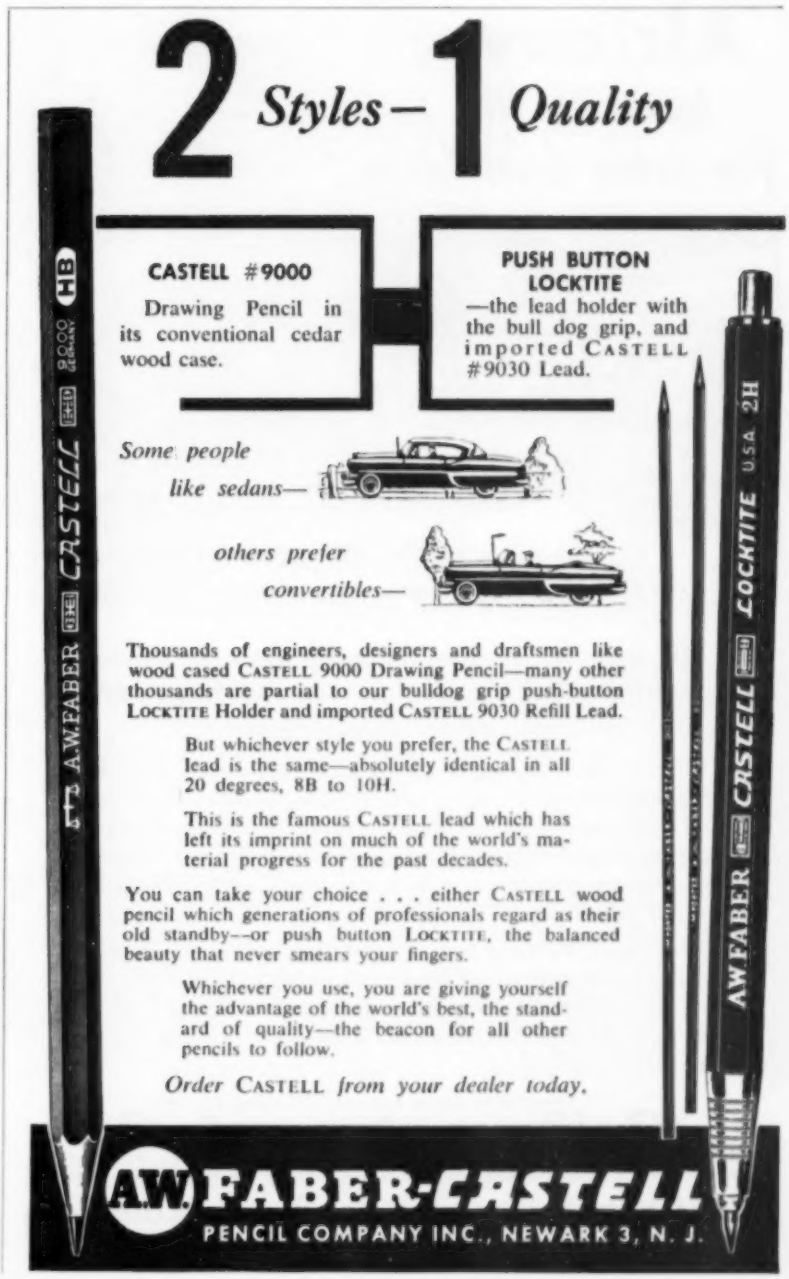
★ **3-96. Store Front Details,** hard-bound brochure containing 111 sheets of detail drawings for all products normally included in store front design. In addition, general information on company's line of products which includes polished, heavy, heat-absorbing, blue and flesh-tinted plate glass; double-glazed insulating units; tempered plate doors; structural glass; glass blocks; and cellular-glass insulation. Specifications. Pittsburgh Plate Glass Company, 632 Duquesne Way, Pittsburgh 22, Pa.

electrical equipment, lighting

4-73. Vokalcall: Audio-Visual Nurses' Call Systems (170-C), 26-p. booklet describing features of three audio-visual call systems designed for hospital use. Installation procedures, wiring diagrams, guide to specification writing, list of installations, photos of equipment. Auth Electric Co., Inc., 34-20 45 St., Long Island City, N. Y.

4-74. A Collection of 25 Home Lighting Ideas with Instructions and Installation Data, packet of home lighting data sheets based on standards of IES and showing lighting techniques for variety of

(Continued on page 144)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Drawing Pencil in its conventional cedar wood case.
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Order CASTELL from your dealer today.
A.W. FABER-CASTELL
PENCIL COMPANY INC., NEWARK 3, N. J.

p/a manufacturers' literature

(Continued from page 143)

home areas. Sheets include construction and installation details, photos of completed jobs, line drawings and sketches with accurate measurements for custom-built installations, and complete illumination data. Price: $1. Illuminating Engineering Society, Publications Office, 1860 Broadway, New York, N. Y.

4-75. Pittsburgh Permaflector Lighting Equipment, AIA-F-2 (D), 8-p. catalog giving technical data and specifications on incandescent floodlights, dual-lighting units (incandescent and mercury-vapor illumination) and silver-mirrored industrial lighting equipment. Lineal distribution diagrams, formulas for determining wattages needed for lighting yards, for night construction, and for protection. Photos, charts, and drawings. Pittsburgh Reflector Co., 421 Oliver Bldg., Pittsburgh 22, Pa.

Airlouvers
have to fit . . .
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Fill any wall opening with one or more weather-tight units tailored for the need
. . . without premium cost

THE conveniently wide size variation in Airlouvers — the unique Swartwout louver system for industrial and commercial buildings — virtually gives you custom-made equipment at economical standard costs. Odd-size units within certain dimension brackets make it easy to fill any size opening with multiples of uniform sections.

Construction is sturdy and efficient. Strong formed channel frame houses overlapping blades that assure weather-tightness. Adjustable style Airlouver features positive closing and quick change of blade position. Made in fixed-blade style also. Write for Bulletin ALO-E.

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The Swartwout Co.
Roof Ventilators and Ventilating Louvers
POWER PLANT EQUIPMENT • PROCESS INDUSTRY CONTROLS

insulation (thermal, acoustical)

6-34. Johns-Manville 85% Magnesia Insulation, AIA 37-D-2 (IN-143A), 12-p. booklet on pipe and block insulating material. Information on how material is produced, its heat transmission, resistance to water, and other physical and thermal properties including density, transverse strength, compressive strength, linear shrinkage, maximum service temperature, and conductivity; charts and photos. Johns-Manville Corp., 22 E. 40 St., New York 16, N. Y.

6-35. Insulation — Facings (FSF-14), 4-p. folder outlining properties and uses of eight types of facings and coatings applied to glass-fiber insulation, including aluminum foil, paper, glass-fiber reinforced paper, vinyl, saran, neoprene coating, glass cloth, and asbestos paper. In addition, data on both wrap-around and panel applications. Data chart gives densities, thicknesses, weights, standard roll widths and lengths. Libbey-Owens-Ford Glass Co., Fiber-Glass Div., Toledo 3, Ohio.

6-36. Fiberglas Acoustical Form Board for Poured-In-Place Gypsum Decks, AIA 37-B (RW6.A3), 4-p. publication describing and illustrating glass-fiber acoustical form board for poured-in-place roof decks for industrial plants, commercial buildings, and schools. Sound absorption coefficients, sizes, installation procedure, heat transmission values, and other data on both form board with bonded glass-fiber mat facing and form board sanded on one side. Cross section of roof system, parapet and end wall details, photos, and charts. Owens-Corning Fiberglas Corp., Toledo 1, Ohio.

specialized equipment

8-53. The Educational Laboratory (EC-2), 16-page catalog containing detailed information on combination science desks, center tables, instructors' desks, homemaking units, and other school laboratory equipment. Description of engineering techniques and materials used, photos and dimensions of various types of units, data on available fixtures, chemistry classroom plans, and photos of installations. Metalab Equipment Corp., 214 Duffy Ave., Hicksville, L. I., N. Y.

8-54. Browne-Morse Office Equipment (53), 66-p. catalog giving data on line of office equipment including desks, tables, chairs, map and blueprint cabinets, counter equipment, cupboard and wardrobe combinations, and various types of files. Description of features, photos and dimensions of units, information on companion pieces and accessories. Browne-Morse Co., Muskegon, Mich.

surfacing materials

9-40. Gold Seal Floors and Walls, AIA 23-J, 32-p. catalog (1954 edition) with data on plain and inlaid linoleum flooring, desk-top linoleum, marine deck tile, bulletin board cork, vinyl-tile flooring, static-conductive linoleum, rubber tile and asphalt tile. Recommended uses, sizes, color charts, and installation specifications. Congoleum-Nairn Inc., 195 Belgrove Dr., Kearny, N. J.

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SUNSHINE HEATING... WARM, DRAFTLESS FLOORS

B & G *Hydro-Flo* Forced Hot Water Heating provides *controlled radiant* heat—keeps homes at a uniform, comfortable temperature. It is particularly effective in homes with large windows or wide spread layouts.

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Automatic modulation of the heat supply prevents fuel waste —keeps heating costs at rock bottom.

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The same room conditioning units and piping system can be used to heat the home in winter and cool it in summer.

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Certainly no modern convenience is more desirable than plenty of hot water for every household use. The indirect Water Heater of a B & G *Hydro-Flo* System furnishes an abundant all-year supply.

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Pipe coils can be installed under sidewalks and circulated with hot water from a *Hydro-Flo* System... melting snow as fast as it falls.

Water is the most effective medium known for delivering heat into a home or carrying heat away. It can be so accurately controlled that regardless of the weather, indoor temperature is always at the comfort level.

When you install a B & G *Hydro-Flo* Forced Hot Water System, you've laid the ground work for all the comforts and conveniences modern engineering has devised for more luxurious living. You've provided better heating... uniform temperature—warm floors—draftless rooms. You've assured fuel economy—the convenience of low-cost, all-year domestic hot water... and the owner can add snow-melting and summer cooling later, if his budget will not permit it now.

The basic units of a B & G *Hydro-Flo* Heating System are illustrated above. They can be installed on any hot water heating boiler.

1. **The B & G Booster.** A thermostatically controlled pump which circulates water through the system.
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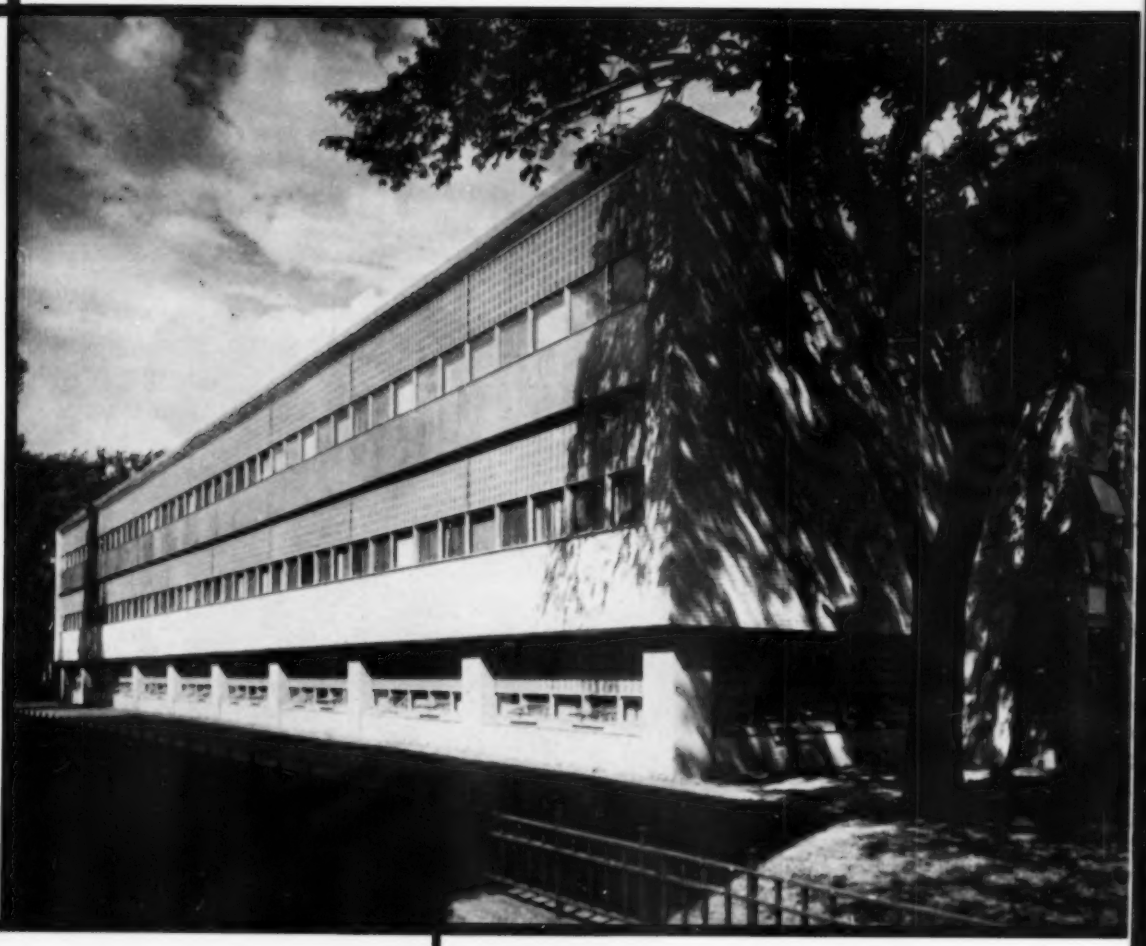

New addition to Sister Kenny Institute, Minneapolis, Minn. Lange and Raugland, Architects and Engineers. James Brunet and Austin Lange, Associate Architects. Knutson Construction Company, Contractor.

How the SISTER KENNY HOSPITAL solved a difficult problem

To provide wards in the new wing to the Sister Kenny Hospital with southern exposure meant having the window wall within 50 feet of an apartment building.

Owens-Illinois Light-Directing Glass Block were chosen for the window system to provide necessary ward privacy with no sacrifice of daylight. These panels of glass block restrict sight completely yet, because of their design, direct daylight towards the ceiling where it is diffused throughout the wards.

Owens-Illinois Glass Block* do more than provide privacy and let in light!

In kitchens and laundries high humidity conditions do not affect glass block panels—they can't rust or rot.

In laboratories glass block seal against the infiltration of dust and dirt.

In nurseries glass block provide an abundance of daylight with exact temperature control.

In operating rooms glass block provide daylight and help reduce air conditioning costs. Because a panel is easy to clean it helps maintain sanitary conditions.

In hospital corridors light can be borrowed from outside rooms and at the same time provide privacy in both vision and sound.

In street level rooms glass block provide privacy and light without use of shades or blinds.

Before you design a new building, or remodel an existing one, investigate the many advantages Owens-Illinois Glass Block provide. Write for the information you want. Glass Block Division, Owens-Illinois, Dept. PA-8, Toledo 1, Ohio. **Formerly known as INSULUX.*

OWENS-ILLINOIS GLASS BLOCK
AN (I) PRODUCT

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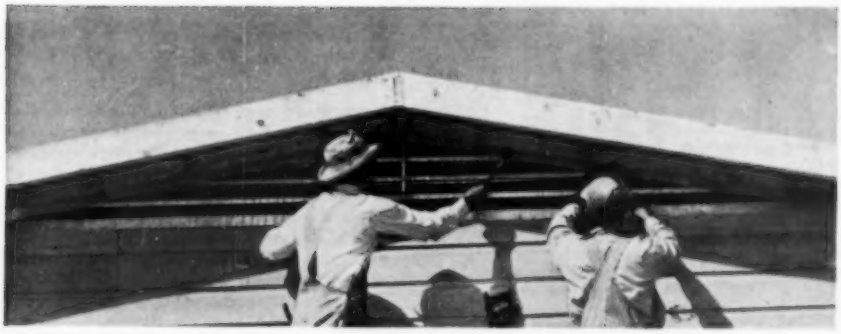
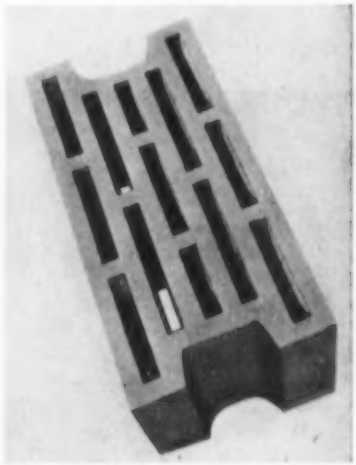
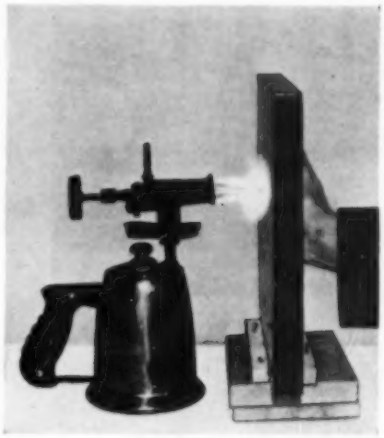


Features of newly designed concrete block, backed by tests made by recognized testing laboratory, include increased compression strength, improved acoustical insulation, elimination of moisture penetration, and increased heat insulation. Block is modular in size and weighs approximately the same as conventional block. American Webco Corporation, 501 Broad St., Sewickley, Pa.

Packaged metal louver, providing attic ventilation and weather protection in one assembled unit, is easily handled and installed. Units are available in 20 sizes with screen attached. Louv-r-Pak Company, Post Office Box 1841, Fort Worth, Tex.



New mineral-compound backing material has been developed for filling architectural porcelain-enamel panels. Applied to the back of panels in the form of a liquid froth, "Porock" aids in achieving desired flatness without seriously increasing weight. Tests for heat conduction give filling a K rating of .75, while in another test, back of the filled side is comfortable to the touch when porcelain-enamel surface is brought to red heat by blow-torch flame. The Erie Enameling Company, Erie, Pa.



air and temperature control

Herman Nelson Heating-Ventilating Units: new line of units providing heating, ventilation, filtering, humidifying, or any combination for installation in theaters, hospitals, offices, stores, showrooms, and industrial buildings. Models are available for installation on floors, ceilings, or walls; capacities range from 1,200 cfm to 15,000 cfm. Both flat bank and angle-type filter arrangements; sectional design; 10 heating coils offered—nonfreeze and standard steam, and hot water types. American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.

Aircoustat: new device which quiets fan and air noise in air-conditioning systems is installed directly into ductwork by means of flexible connections and can be located either between the fan and room or above individual diffusers. Galvanized steel or aluminum units are available in 11 standard sizes and in three types; special formed-on flanges may be ordered. Industrial Sound Control Inc., 45 Granby St., Hartford, Conn.

Triple-Featured Heating Control System: new heating-control system for use in schools allows individual room regulation and at the same time permits principal to maintain push-button supervision over conditions in all classrooms through use of master control monitoring panel. Thermostat is adaptation of individual classroom control instrument and also includes fire-detecting element which sounds alarm and indicates on master control panel exact location of blaze. Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave., Minneapolis 8, Minn.

Linear Multi-Vent Panel: new air diffuser for heating, cooling, and ventilating is specially designed for use with Celotex Corporation's flush, perforated acoustical ceiling panels. With use of panels as diffusing plates, protruding air outlets and grills are eliminated. Flexible, compressible tubing supplied with diffusers for use with duct air supply. The Pyle-National Co., 1334 N. Kostner Ave., Chicago 51, Ill.

Williamson Horizontal Unit: new gas-fired horizontal furnace (preassembled and prewired) may be installed in attic, basement, under floor, or suspension-mounted in utility room, Five models have input ratings of 60,000, 80,000, 100,000, 120,000, and 140,000 Btu. Standard equipment includes thermostat, pressure regulator, shut-off safety valve, and main gas valve. Optional filter rack. Williamson Heater Co., Madison Rd., Cincinnati 9, Ohio.

(Continued on page 148)

p/a products

(Continued from page 147)

construction

Aluminum Life Shingles: design of aluminum shingles allows each 9" x 18" shingle to interlock to its neighbor on all four sides and to all accessories from started strip, which wraps around eaves, to ridge cap. Design allows for expansion and contraction. Shingles may be installed over old roofs, are available in baked-enamel colors or in natural aluminum. Single nail secures each shingle. Aluminum Life Shingle Corp., 427 S. W. 13 Ave., Portland 5, Ore.

Colorbestos Shingles: colored ceramic granules embedded into new asbestos siding shingles give vertical random-ribbed appearance. Strong, striated pattern of 32" x 14⅝" shingles suggests deep texture. Width spans two 16" stud spaces with three prepunched face nail holes arranged for direct nailing into studs. Available in white, gray, green, and brown. Johns-Manville Corp., 22 E. 40 St., New York 16, N. Y.

Korr-Stud: new cadmium-plated welding stud designed to speed and improve installation of corrugated asbestos roofing and siding. Enlarged weld-base diameter provides greater cross section of weld. Studs are welded at recommended intervals along steel purlins or girts, by pull of stud-welded gun trigger, through holes drilled in crown of asbestos corrugation. Nut with intergral neoprene or soft lead gasket is then run on the stud. KSM Products, Inc., 324 Woodland Ave., Merchantville, N. J.

Roofclad Roof Protection System: flexible glass-fiber mat, sandwiched between three layers of asphalt emulsion, is particularly recommended for sealing and preserving "alligatored" or checked coatings. Inorganic mat cannot rot and has advantages of high tensile strength and flexibility in every direction. Emulsion can be either brushed or sprayed. Tremco Mfg. Co., 8701 Kinsman Rd., Cleveland 4, Ohio.

doors and windows

Ualco Ranch Window: new extruded aluminum window for homes, institutions, and commercial buildings will accommodate standard "Thermopane" for both fixed and ventilator lights. Operating units of awning-type ventilators, hinged at top and opening from bottom, may be used in multiple unit combinations with fixed lights—as window walls and in conventional vertically-stacked double unit arrangements and horizontal ribbon arrangements. Southern Sash Sales & Supply Co., 818 20 St., Sheffield, Ala.

Stan-Guards for All-Glass Doors: protective device for use on wood and metal frame doors may now be installed on all-glass doors as well. Flexible plastic stripping, which comes in variety of widths, runs full vertical length of door and is secured to both door and door jamb by aluminum anchor moldings that hold it in place while allowing complete freedom in opening or closing of door. Doors may be manually or automatically operated and pivot- or hinge-hung. The Stanley Works, Magic Door Div., New Britain, Conn.

electrical equipment, lighting

Guth Two-In-One Bracket: new fluorescent fixture with egg-crate type louver may be used for either cove indirect lighting or direct downlighting. Bracket mounts either way without extra gadgets or any change in the bracket itself. When used as cove fixture, 80% of light is beamed directly upward and outward and 20% is beamed downward to brighten side walls; when used as downlight, distribution is reversed. Louver-diffuser provides shielding in 45° x 90° zones. The Edwin F. Guth Co., St. Louis 3, Mo.

(Continued on page 150)

Kroger supermarket in Glendale, Missouri. Architect: Cay Weinel, St. Louis, Missouri. Contractor: White Development Corporation, St. Louis, Missouri.

EASY DOES IT

...with lightweight, versatile

LACLEDE STEEL JOISTS

Fast placing and erection . . . combined with modern design and strength make Laclede Steel Joists the answer to today's needs in roof construction.

Specify these LACLEDE Products:

Multi-Rib Reinforcing Bars • Steel Pipe • Welded Wire Fabric
Form and Tie Wire • Spirals • Conduit • Corrugated Steel Centering

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LACLEDE STEEL COMPANY
St. Louis, Mo.

Expert Kitchen Line-Up!

Here's a planner with a real line on kitchen layout—a man who's done away with equipment problems by concentrating on the Hobart line.

Look at all that he's accomplished! His all-Hobart installation gives equipment universally acknowledged as best engineered and built for top performance. More, it gives all the added benefits of *interchangeability* of attachments and accessories—of wide choice of capacities and sizes for most efficient operation.

There's a model built to *produce best*—for every type of installation—in every category of Hobart food, bakery, kitchen, glasswashing or dishwashing machine. Check the extent of our line as listed, below. Then, consult our local representation—or fill out the coupon and drop us a line. Either way, you'll get complete, detailed information, specifications and capacity data on the most complete line in the industry. Get it—and let Hobart help you line up your kitchen plans . . . ***The Hobart Manufacturing Company, Troy, Ohio.***

DISHWASHERS • GLASSWASHERS • DISH SCRAPPERS • MIXERS
PEELERS • FOOD SLICERS • FOOD CUTTERS • MEAT CHOPPERS
MEAT SAWS • TENDERIZERS • COFFEE MILLS • SCALES

THE HOBART MANUFACTURING COMPANY, TROY, OHIO
Attention: **DEPT. ADV.**

☐ Please send full information on the complete Hobart line of Food Machines ☐ Kitchen Machines ☐ and Dishwashing Machines ☐

☐ Please have my local representative call on me.

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Trademark of Quality Hobart for over 58 years

Hobart

Food Machines

The World's Largest Manufacturer of Food, Kitchen and Dishwashing Machines

p/a products

(Continued from page 148)

Sheraton: new fluorescent lighting fixture measuring 3¼″ in depth is designed especially for low-ceiling school rooms and offices. Fixture incorporates translucent plastic sides and one-piece steel louver with cutoff of 30° crosswise, 45° lengthwise. Available for two or four 40-watt rapid-start, bi-pin lamps (in 4′ and 8′ housings), as well as two or four 48″ or 96″ slimline lamps. Smithcraft Lighting Div., Chelsea 50, Mass.

National 6x6 Wirewa: new line of wireway and auxiliary gutter designed to allow greater capacity to meet demands being placed on accessible raceway. Made in lengths of 1′, 2′, and 5′, raceway is die-formed from .078 steel and finished in baked gray enamel. For use in corrosive locations, raceway is made of galvanized steel with same finish. Various fittings for "T", "L", and cross-over and junction boxes are available. National Electric Products Co., Gateway Center, Pittsburgh, Pa.

FLOOR JOISTS TO BEAMS IS ONE OF MANY PLACES IN WHICH TO SPECIFY

TECO

Trip-L-Grip FRAMING ANCHORS

for stronger, more economical secondary connections in wood framing

DETAILED DRAWINGS of 12 popular uses of ***Trip-L-Grips*** are in the booklet, "Architects Aids for Better Homes and Other Wood Construction", along with design information and recommended safe working loads.

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insulation (thermal, acoustical)

Hansotone Acoustical Formboard: perforated wood-fiber insulating board developed for use with poured-in-place gypsum roof decks. Light reflection: .76; sound absorption: .60 NRC, K Factor: .35. Available in standard 1″ thickness; standard size 32″ x 48″. Board is designed for use with standard sub-purlins spaced approximately 32⅝″ on centers. Elof Hansson, Inc., 220 E. 42 St., New York 17, N. Y.

Richkraft 65: new membrane waterproofing made by laminating two sheets of kraft paper, has been accepted by FHA as water vapor barrier under concrete slab on ground in lieu of felt or 55-lb membranes and for over crawl space when slab is not poured on ground. Sheets are pretreated with special fungicide in accordance with Housing Research Series No. 15, HHFA. Available in rolls 36″ and 48″ wide with 432 sq ft and rolls 72″, 84″, and 96″ with 1000 sq ft. The Richkraft Co., 165 W. Wacker Dr., Chicago, Ill.

sanitation, plumbing, water supply

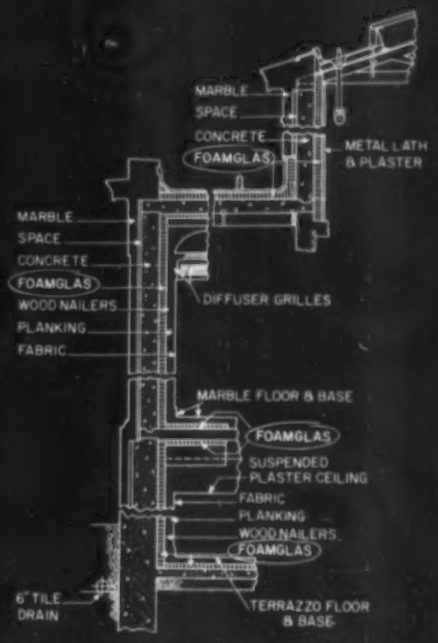
Unitrol Model 102: new model of gas water-heater control suitable for all gases including L. P. Unit combines thermomagnetic, automatic pilot unit, snap-action thermostat, and large-capacity gascock. Control is made of special aluminum alloys for all close fitting parts exposed to gas while corrosion-resistant red brass and copper are used for parts immersed in water. Substantial air space separates water immersion element and gas valve. Robertshaw-Fulton Controls Co., 110 E. Otterman St., Greensburg, Pa.

specialized equipment

Paasche Compressor: new single-unit compressor, delivering oil-free air under pressures automatically controlled and ranging from 1 to 60 lb, is designed to meet needs of multiple airbrush installations and other air-pressure requirements in studios, laboratories, museums, schools, and hospitals. Both motor and compressor are designed with sealed ball bearing lubricated for life. Rated at ⅓ hp, with capacity of 2 cu ft per min at 20 lb pressure, unit weighs 36 lb and measures 15″ x 8″ x 13″. Paasche Airbrush Co., 1909 Diversey Parkway, Chicago 14, Ill.

Bruning Technical Illustration Templates: new five-piece template set adapts functions of basic orthographic drawing tools to pictorial drawing. Set provides uniform, positive system for determining dimensions of lines and angles in pictorial drawing without requiring involved projections, mathematical calculations, graphs, or special boards. Curves, radii, and ellipses are also determined by use of templates alone. Can be grasped by draftsmen without special training. Charles Bruning Co., Inc., 4700 Montrose Ave., Chicago 41, Ill.

Photograph shows workmen applying asphalt seal to joints of FOAMGLAS laid on forms for boiler room ceiling slab. Clips shown will anchor FOAMGLAS to concrete when poured.



These typical sections show the use of FOAMGLAS in walls, roof and basement floor of the Clark Art Institute. Architect: Daniel Perry, A.I.A., Port Jefferson, N.Y. General Contractor: The George A. Fuller Company.

"Insulating with FOAMGLAS solved a vital temperature-humidity control problem for us!"

reports Sterling and Francine Clark Art Institute

Here is the Architect's rendering of the beautiful new Sterling and Francine Clark Art Institute, Williamstown, Massachusetts. FOAMGLAS insulates the roof slab, all exterior walls and the basement floor.

"The *moisture-proof* insulating protection of FOAMGLAS was an important factor in solving our vital temperature and humidity control problem," reports the Sterling and Francine Clark Art Institute, Williamstown, Massachusetts. "Precise control of temperature and humidity in all seasons is essential to proper protection of the art treasures to be displayed in our new building. That called for an insulation combining high insulating performance with *moisture-protection*. FOAMGLAS solved this problem because its sealed glass cells cannot absorb or transmit moisture. Here's our Architect's report on the selection of FOAMGLAS:

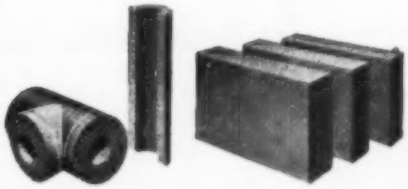
"'We insulate with FOAMGLAS because it combines permanent thermal insulating and vapor sealing qualities with freedom from maintenance. Also, its rigid structure permits us to apply metal lath plaster without anchoring to the structure proper.'"

It will pay *you* to investigate the important advantages of insulating with FOAMGLAS. See our catalog in Sweets, or send for a free sample and our booklets describing the use of FOAMGLAS to insulate: 1) walls, floors, roofs and ceilings of normal temperature buildings; 2) cold storage space; or 3) piping, tanks and other equipment. Write, indicating your specific interest.

PITTSBURGH CORNING CORPORATION
Dept. AB-84, One Gateway Center • Pittsburgh 22, Pa.

FOAMGLAS®

the cellular, stay-dry insulation



Pittsburgh Corning also makes PC Glass Blocks

WHAT'S YOUR I.Q.
ON NATURAL, RED OR WHITE
Birch?

HARDWOOD PRODUCTS
Solid Core DOOR

VENEER DATA helps you maintain uniformity on all specifications

Do you know that most Birch veneer used in quality doors comes from one specie? Confusing as it may seem, Natural, Red and White Birch actually all come from the Yellow Birch tree! Regardless of type, however, HPC Birch Veneer doors are carefully matched for a pleasing decorative effect.

NATURAL BIRCH (sometimes referred to as unselected) is a mixture of heartwood (Red) and sapwood (White). Natural Birch is selected for quality but not for color. It is available on Hardwood Doors in 1/20" Rotary Cut, 1/20" Sliced, 1/8" and 1/4" Sawn veneers.

RED BIRCH is the heartwood of the Yellow Birch tree, and is selected for both color and quality. *Selected* Red Birch Veneer on Hardwood Doors comes in 1/20" rotary cut and 1/20" sliced.

WHITE BIRCH is the sapwood of the Yellow Birch tree and is selected for both color and quality. *Selected* White Birch Veneer on Hardwood Doors is available in 1/20" Rotary Cut and 1/20" Sliced.

Don't take chances with veneer species, color or grain when matching doors or surroundings. Consult us or refer to Sweet's 15c/HA file for complete veneer data on Hardwood *Solid Core* doors — the quality door you'll surely specify when only the best will suffice.

Custom-Built FOR YOU!

You can specify any type HARDWOOD Doors with full confidence that they will meet your specifications. All, are made-to-order and guaranteed free from defects of workmanship and materials.

HARDWOOD PRODUCTS
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America's finest doorway closure for reducing noise penetration — insuring room privacy. Send for new FREE brochure describing these doors in "easy-to-understand" non-technical language.

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HARDWOOD PRODUCTS CORPORATION DOORS

HARDWOOD PRODUCTS CORPORATION • NEENAH • WISCONSIN

p/a views

(Continued from page 15)

tors. His ability to harness disparate capacities such as those of Gilbert Stanley Underwood and H. G. Hunter into a team is almost unique in Washington offices.

I think the Federal Government in general, and PBS in particular, is much better equipped to handle an anticyclical program, should one be necessary, than is suggested by Gutheim's comments. In the first place, there are more grant-in-aid programs outside the Housing and Home Finance Agency than in it. Public roads and hospital programs, for example, are sizable operations. In the second place, Mr. Reynolds' office does have well-organized material which would permit him to expand his operations in a hurry and in an intelligent and very useful fashion, despite the difficulties which he has had to face.

I certainly would not agree either that Mr. Reynolds has conceived his function to be ready and waiting for the order. The agency for which he works has desired better buildings and fought for them almost desperately. Mr. Reynolds has not considered it his function to put up buildings for the sake of building, rather to work for the efficient housing of Federal employes. He has supported programs of the various agencies when they deserve support, and he has tried to locate those buildings in the light of city plans and the future growth of the communities in which he was building them. His approach definitely has been constructive and not passive.

We are all glad that he is not leaving the profession and that he is planning to continue work in Washington. May his work ahead be prosperous as well as pleasant.

ROBINSON NEWCOMB
Washington, D. C.

school economies

Dear Editor: I noted with interest in February P/A the article concerning simplified construction costs of a school listed on Page 10, PROGRESS PREVIEW.

You might be interested to know that we have used this type of framing for some time. The school we designed in

(Continued on page 154)

how JOHNSON CONTROL PROTECTS one of the NATION'S MOST TREASURED BUILDINGS...

MONTICELLO

Monticello, Charlottesville, Va. (Restoration Program). Milton L. Grigg, F. A. I. A., architect, Charlottesville; Wiley & Wilson, mechanical engineers, Richmond; R. E. Lee & Son, general contractor, Charlottesville; Wachter & Wolff Corp., heating and air conditioning contractor, Richmond.

Monticello, home of Thomas Jefferson, is one of America's most inspiring buildings. Recently restored to its original design, the famous mansion has been equipped with a modern system of Johnson Automatic Temperature and Humidity Control. The system is designed to *preserve* and *protect* the building and its many valuable contents, rather than for comfort alone.

The temperatures in each of six zones are controlled by Johnson T-315 Remote Readjustable Room Thermostats which regulate hot and cold deck dampers on the new central air conditioning system. These special purpose thermostats are conveniently reset from a central control point. During the heating season, they maintain each zone at a constant temperature of 72°F. In the cooling season, they vary the zone temperatures from 72° to 80°F. as the outdoor temperature rises from 70° to 95°F.

The Johnson Zone Thermostats are concealed inside the original fireplaces which, together with their flues, have been converted to air returns. No thermostats or grilles are visible to visitors. A master temperature control panel is located in the mechanical equipment room with the central air conditioning equipment.

Of special importance is the year 'round protection afforded by Johnson Humidostats which regulate the relative humidity in relation to the outdoor temperature. Relative humidity ranges from 20 per cent at 0°F. to 50 per cent at 72°F. or above.

The accuracy and flexibility of the *Monticello* installation are typical of Johnson Control Systems, because each one is specifically planned, made and installed by Johnson *to meet the exact needs of the individual control problem*. That is why you will find "Planned-for-the-Purpose" Johnson Control not only in the nation's outstanding buildings, but in public, commercial and industrial buildings of all types and sizes.

The nearly 70 years of experience of the nationwide Johnson organization is at your disposal without obligation. Next time you have a temperature control problem, call an engineer from a nearby branch office. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

JOHNSON CONTROL

TEMPERATURE ↕ AIR CONDITIONING

MANUFACTURING • PLANNING • INSTALLING • SINCE 1885

(Continued from page 152)

September 1952 using this method, we were able to get for only $7.91 a square foot, which is also 71¢ a cubic foot.

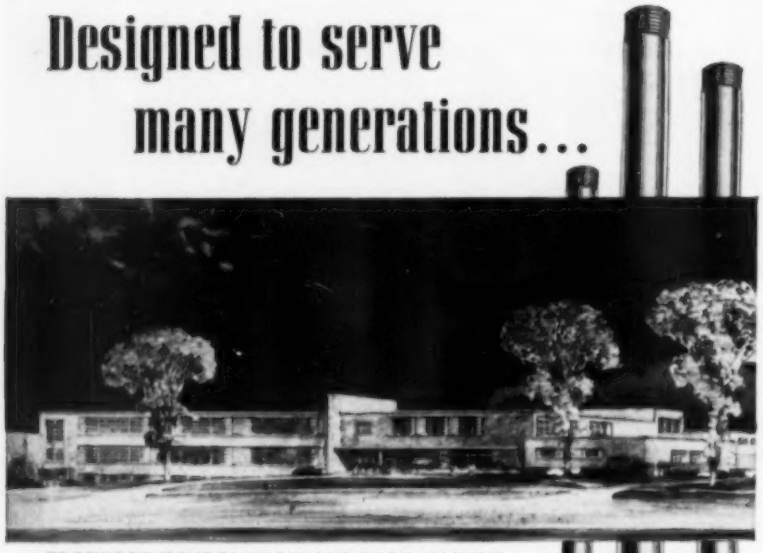
Total cost of the project was $98,591.00 with cubical contents 137,396, and a floor area of 12,486 square feet.

We used our more recent refinement and development of our initial economy construction system, on a recent Oklahoma City school which we were able to get for $7.80 a square foot.

ROBERT W. VAHLBERG
Vahlberg, Palmer & Vahlberg
Oklahoma City, Okla.

P. S. This was Oklahoma City's most complete inexpensive school — according to the school Board's announcement.

Designed to serve many generations...



EDGEWOOD SCHOOL, HIGHLAND PARK, ILLINOIS
ARCHITECT: CHILDS & SMITH, CHICAGO
PLUMBING CONTRACTOR: J. G. WEBER, CHICAGO

and Clow "IPS"* (threaded) Cast Iron Pipe will last the life of the building!

Highland Park is one of Chicago's better North Shore suburbs. Gracious design and functional superiority are prerequisites of its buildings. Thus, even its most time-hallowed structures are pleasantly distinctive today. And its new Edgewood School, low in line and embodying all that's truly modern in equipment as well as design, will remain a credit to the community a century from now. Moreover, its Clow "IPS"* (threaded) Cast Iron Pipe downspouts, drains and waste lines will still be serving faithfully . . . because Clow "IPS" Pipe is corrosion-proof, requires *no* replacement, *no* upkeep. Installation is fast, economical . . . permanent.

*Iron Pipe Size O. D.

Clow "IPS" (threaded) Cast Iron Pipe has the same O.D. as steel pipe, is available with plain or threaded ends, in 3, 4, 5, 6, 8, and 10" sizes in 18' random lengths. Also available with integral calking hub on one end (other end plain) in 18' random lengths in 4, 6, and 8" sizes.

Clow Cast Iron Pipe can be...

on the job, with ordinary tools of the piping trade.

JAMES B. CLOW & SONS
201-299 North Talman Avenue • Chicago 80, Illinois

WHOLESALERS OF PLUMBING AND HEATING SUPPLIES
Publishers of the Clow Bulletin

architect's approval

Dear Editor: I am in the hospital with iritis, an infection of the right eye, and cannot read or write much; but appreciate the excellence of the work in the May issue of P/A and have so written Louis Kahn. The article (*on Yale Art Gallery and Design Center*) was extremely well illustrated and very well done in general. I am sure you must be proud of it.

PHILIP L. GOODWIN
New York, N.Y.

defining overhead*

Dear Mr. Spiegel: Your recent letter makes clear the difference between the figures you quote for "Overhead" (February 1954 P/A) and our own figures. We include in our "Indirect Expense" calculations that portion of partners' drawing accounts which is not allocated to work on specific jobs.

Our practice in this respect is in accordance with "Recommended Procedures and Practices—Part 1," Chapter 3, Page 1, of the manual *Standardized Accounting for Architects* issued by the AIA.

The Manual States: "*Salaries for Principals* should be established at amounts as nearly as possible representing what it would *cost* to employ someone to perform the services rendered by each principal. This is an orderly way to conduct the business and the only way to obtain proper job *costs*."

This subject is mentioned again in Part 6, Chapter 29, Page 5 under the heading "Indirect Expense Accounts": "500 *Salaries, Principals.* Salaries, Principals are actually a partial distribution of profit rather than an expense. It is recommended, however, that definite salaries be established for the Principal(s) since the services rendered by the Principal(s) are a *cost* of doing business. See Chapter Three. Unless such salaries are established, an accurate statement of operations is not possible. This account is debited to Principal(s) and Cash in Bank credited from Column 2 of the Cash Journal."

(Continued on page 156)

* *Continuation of correspondence printed in VIEWS of April 1954 P/A.*

MUELLER BRASS CO. *Streamline*®

COPPER TUBE AND FITTINGS . . .

EASILY INSTALLED FOR *BOTH* SUPPLY AND DRAINAGE PLUMBING

The plumber who knows the advantages of Streamline copper tube and fittings is the man to call in for supply and drainage plumbing in the houses you design and build. For Streamline copper plumbing makes an efficient, neat and attractive installation that stays tight and leakproof, rust-free, clog-free and completely dependable for years to come. Prospective home owners prefer it . . . even insist on it because they know that an all-copper system will give them trouble-free service and last as long as the house they buy.

When you install Streamline copper plumbing, you usually save enough on installation time and construction costs to offset the slight additional cost of the copper tube and fittings. And you have a finished home that is far more salable because of the copper installation.

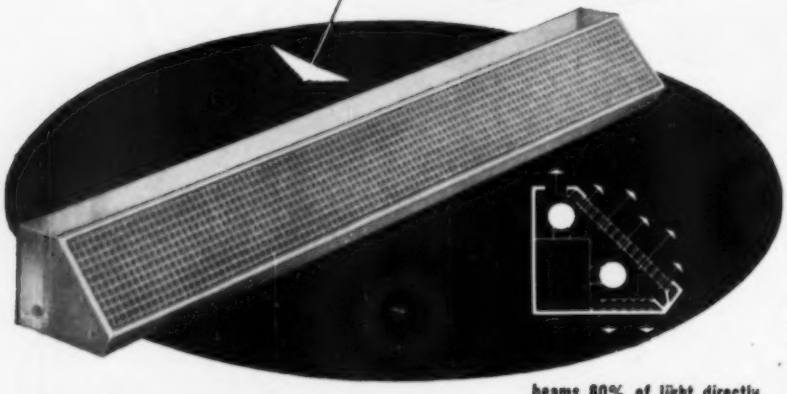
Write today for our latest catalog of Streamline plumbing and heating products.

127-A

MUELLER BRASS CO. STREAMLINE PRODUCTS

MUELLER BRASS CO. PORT HURON 33, MICHIGAN

a brand new slant on cove lighting



GUTH GRATELITE* LUMINOUS COVE

(the 2-in-1 bracket) (TM Pats. Pend.)

An exciting new look. Sparkling—like a superb diamond! Classic beauty and workmanship in the Guth tradition. ***It's the new*** fashion in Cove lighting made possible by GRATELITE: low brightness, high efficiency, excellent diffusion, low upkeep.

beams 80% of light directly upward and outward!
beams 20% of light downward to brighten side walls!
perfect shielding in 45° x 90° zones by GrateLite!

as luminous indirect cove

in fitting room

in barber shops

over hospital bed

LOOK! YOU CAN TURN IT OVER, TOO!
Mounted "upside-down"—it solves dozens of tricky lighting problems where downward and outward beams are needed.

Write on your letterhead today for Bulletin 929-BB.

chalkboard downlite with cove

*U. S. & Can. Pats. Pend. TM Reg.

Guth

THE EDWIN F. GUTH CO. • ST. LOUIS 3, MO.

Leaders in Lighting Since 1902

p/a views

(Continued from page 154)

The AIA Committee in charge of developing the Standard Accounting System gave this matter serious consideration, and it was established that unless Principals were paid a salary which was distributed properly to Direct and Indirect Expense Accounts, any accurate job accounting would be impossible.

I think that any published figures on the subject are of little value and may, in fact, do great damage to the profession unless established standards are adhered to. If we are not all talking about the same thing, our figures have no meaning.

As the system referred to above is accepted as standard by the AIA and is in wide use over the country by many firms, I urge that in your publications on the subject you adhere to the principles set up in that system. Unless this is done considerable confusion must result, due to the use of two different systems.

Some confusion on the subject arises, no doubt, from the fact that all compensation received by a partner in any business is regarded as taxable income by the Internal Revenue Department. However, for purposes of job cost accounting, a true picture cannot be obtained unless principals' time is charged. It should be entirely obvious that a principal who devotes his time to his profession in any capacity, whether it be design, drafting, administration, promotion, or anything else, must be compensated for his work in the same way in which an employe would be compensated if he were hired to this work. This compensation is part of the expense of practicing his profession, and unless this expense is properly recognized in the accounting method employed by his office, a realistic analysis of job costs is impossible.

A knowledge of job costs in many cases is vital to the architect. In negotiating fees with Government Agencies, in doing work on a cost plus or lump sum basis, in budgeting costs during the progress of a job in the office, in arriving at settlements for extra work done, or for jobs which are abandoned before being built, etc.

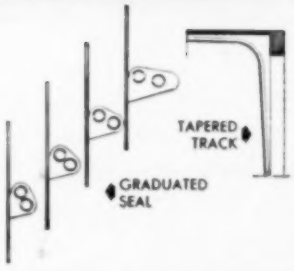
(Continued on page 158)

Just a few of the reasons it is wise to specify

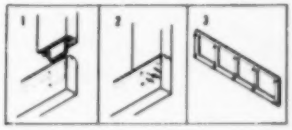
RAYNOR

wood sectional overhead doors exclusively!

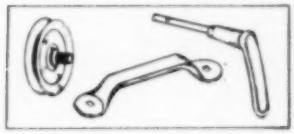
Graduated Seal—
produced by Raynor, seals the door sections against the jamb or molding only when the door is completely closed. At all other times the free-easy rolling Raynor door operates with finger-tip control.



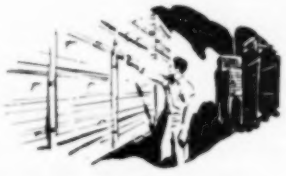
Three-Way Stress Construction—
is utilized on all Raynor standard door sections:
1—mortised and tenoned.
2—steel doweled.
3—waterproof glued.



Raynor Exclusive Protecto-Dip Process—
affords complete weather protection for all interior hardware. Exterior hardware is cadmium plated. Lock handle chrome.



Raynor Doors—
are built from the choicest material. Only the finest kiln dried lumber is used in Raynor rails and stiles and panels are of laminated waterproof plywood.



For the name of the Raynor representative nearest you—check your telephone directory or write direct.

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Dur-O-waL is electrically-welded in a single plane of high tensile steel (100,000 p.s.i.); knurled side rods increase mortar bond. All inquiries will receive prompt attention.

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Frontier Manufacturing Co.
Phoenix, Arizona

• **Dur-O-waL Div., Dept. 1-A**
Cedar Rapids Block Company
Cedar Rapids, Iowa

p/a views

(Continued from page 156)

It therefore seems to me to be of paramount importance to the profession as a whole that any publications on this subject be based on sound and standard accounting practice.

I would very much like to hear your views on this point, and would be glad to discuss the matter with you further, if you so desire.

JOSEPH H. ABEL
Berla & Abel
Washington, D.C.

•

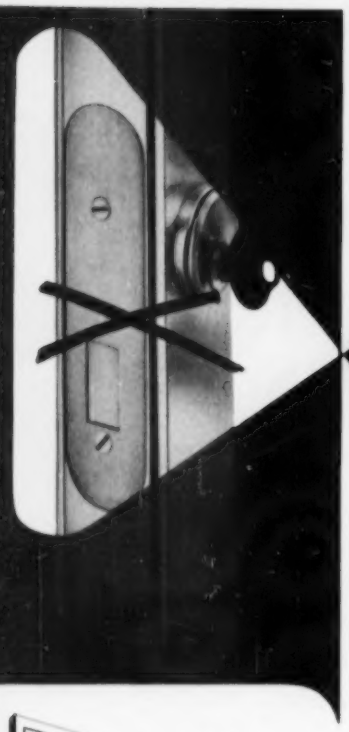
Dear Mr. Abel: Thank you for your informative letter. Basically I concur with certain procedures recommended in the AIA system. When it first was published, our accountants and this office examined the system as to its adaptability to our own office. We found then that the system this office had used previously was simpler than the one proposed by the AIA and we therefore decided to continue to use it.

Specifically with regard to charges of principal's time: In numerous offices which I have queried, principals' drawings vary considerably and are in many instances not drawn upon regularly or evenly. This procedure, of course, only affects the partner's or individual principal's capital account. To translate whatever the proportion of the drawing account may be into the dollar value of "direct" expense for time spent on a job and at a senior employe's rate may therefore become rather unrealistic. However, in an article published in May 1954 P/A, I attempt to emphasize the importance of a principal's keeping a record of *time* on "Jobs." Our individual job accounts show among other items not only the salaries, but also the actual number of hours spent on a project (as well as the balanced average hourly rate per man). To the draftsmen's hours are added separately the number of principal's hours, which are taken from his diary. Any dollar substitution can then be made for the principal's time. This type of accounting, obviously, not only shows the actual expense incurred, but also can be and is frequently used as a guide for budgeting future jobs. (Since wages fluctuate from time to time, the number of hours represent a more accurate basis to which the prevalant rate is applied when used for budget reference.)

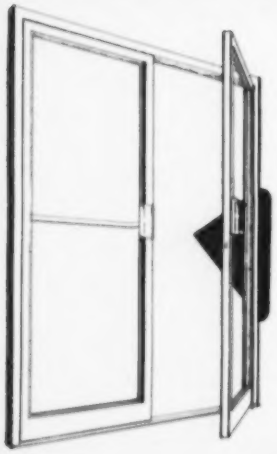
On certain jobs where a principal may bill for his time at a predetermined rate, it is quite obvious that the record kept by him will be more accurate than usual. On other major size, cost-plus-fee jobs, the principal's services more often than not are paid for by the "fee," and the reimbursal for "technical salaries" and "—% overhead," specifically limits the recognized overhead items roughly to the list I enumerated in my last letter to you.

While a principal will frequently

(Continued on page 160)



The New *Face* on the *Trimline* Door



Simple, smooth and strong. The Amarlite Cylinder Lock, designed and manufactured by the American Art Metals Company, eliminates the traditional large mortise. Instead, the Amarlite Trimline lock reveals a continuous face-plate, the cylinder is engineered directly into the meeting-style. Thus the lock becomes more than a unit of applied hardware — now it is an integral part of the precise mechanism that is an Amarlite Entrance.

This is another of the exclusive features found only in the Amarlite Trimline Entrance.

For full details and the 1954 Amarlite Catalog, write American Art Metals Company, 433 Bishop Street, N.W., Atlanta, Georgia.

AMARLITE aluminum entrances

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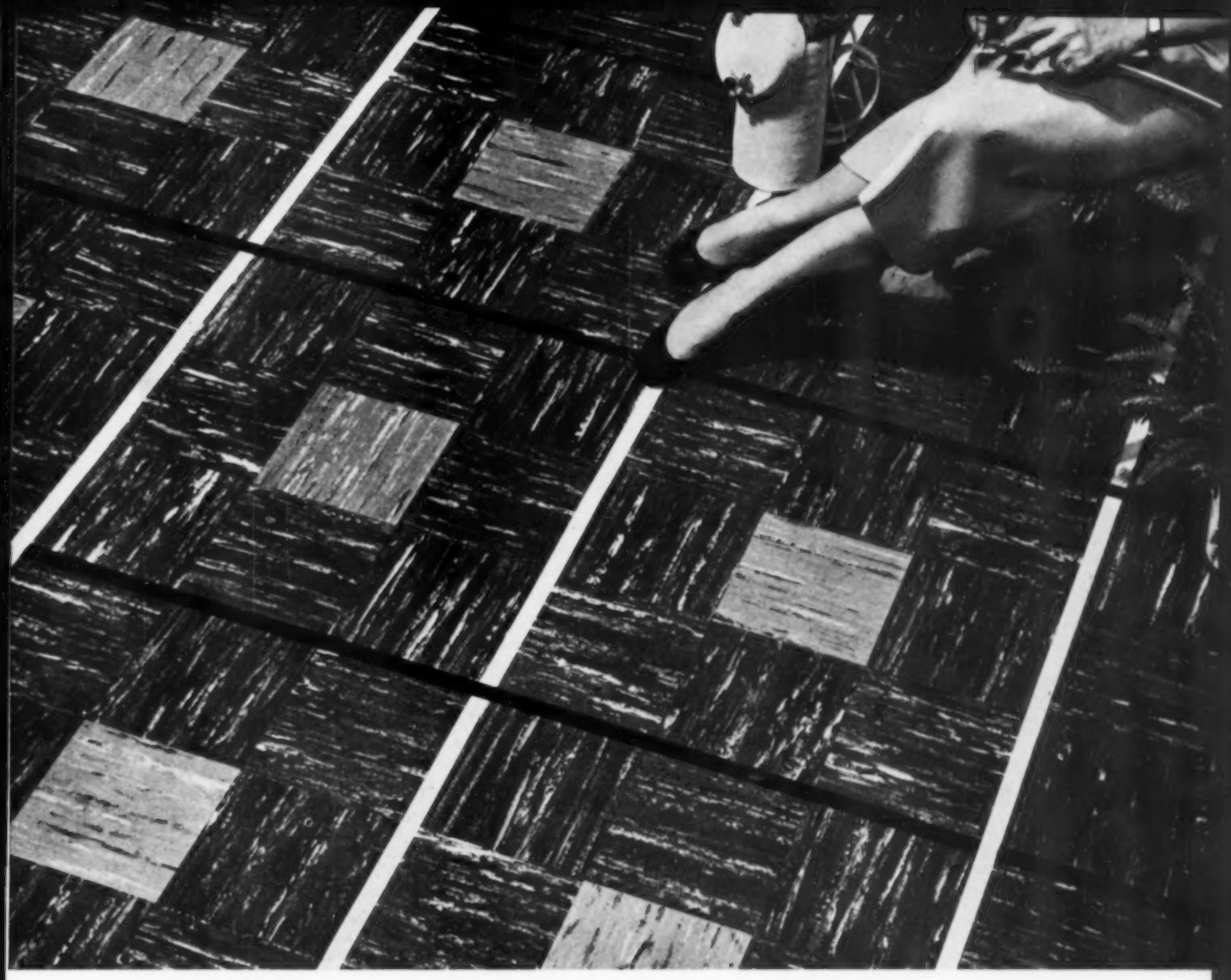

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The most rigid test for any floor tile is right in those rugged testing laboratories — the homes and offices throughout the country. And MATICO Asphalt Tile—and all the other fine MATICO products — has been passing these gruelling tests with flying colors in installation after installation.

But before MATICO products are subjected to this "final exam", they must pass exhaustive scientific tests right in our own lab — and we can be tough, too! For instance, MATICO Asphalt Tile flooring must meet or exceed exacting Federal specifications for flexure, curling, impact and indentation — in addition to constant examination for color uniformity, square corners and straight edges. Any tile that fails to pass these tests — and many others — is automatically rejected.

What does all this mean to you? It's your assurance that MATICO Asphalt Tile — or any MATICO product — will always meet your exact specifications.

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SLIDING DOOR LOCK

SERIES 660
this new Series 660 Two-Bore Lock now even better than the original design is available today for prompt delivery

Outstanding in design—simplest to install—and with life-time performance even under extreme misalignment... this is the amazing story of Series 660. Simple installation... fits standard 2¼" and ⅞" bore. No mortising. Lock accommodates any door misalignment. Bolt gives smooth snubbing latch action and acts as edge pull. Thumb button provides positive security. Solid brass except stainless steel bolt. Adjustable for all doors 1⅜" to 1¾" range. Interchange of locking and non-locking escutcheons makes lock instantly reversible on job.

The unique new 660 Display Box shows how easily the lock is installed. Lock is mounted in the box just as it is in the door. Because of this, the box serves as an exact template for quick installation.

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SPECIALIZED LOCKS AND BUILDERS' HARDWARE

p/a views

(Continued from page 158)

spend considerable time on "Indirect" items, e.g., contact potential clients, prepare proposals, and budgets, attend professional organizations' functions, etc., it seems unfair to burden the "Overhead" account with the proportion of his drawings for time so spent. To use actual figures of drawings may tend to overburden the overhead item, while an arbitrarily assumed figure which equals the salary payable to a senior employe, but which does not represent his actual drawings, will be of little value. Furthermore, if a principal's time were spent, using a drastic example, mostly for "indirect," but not always necessary, phases which would benefit his practice, the overhead account reflecting his rather high drawings would result in a highly distorted picture. I doubt whether it is feasible to establish a ratio of a principal's indirect time as one can at least do relatively accurately for the technical staff.

I believe that a principal's knowledge of his accurate costs to do a job, and knowing the number of *his hours* spent (should he in the future have to use an employe instead) in addition to the hours of his men, plus the percentage of relatively constant overhead which excludes his indirect time, will give him a better picture of his costs for budget purposes, than were he to include a constantly flexible amount for his indirect time. Compensation for his own "indirect" time—and profit beyond that—he can easily estimate when he prepares a budget for a proposed job.

I had discussed this intricate problem with many other offices and found them to concur with the above.

Permit me to state that I am grateful indeed for your most valid critique. A discussion on subjects such as this certainly is helpful. SIEGMUND SPIEGEL

notice

OUT OF SCHOOL, regular column written by CARL FEISS, was omitted from this issue but will be resumed next month.

a palm is not an oak!

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FEATURE . . .

- high efficiency cores
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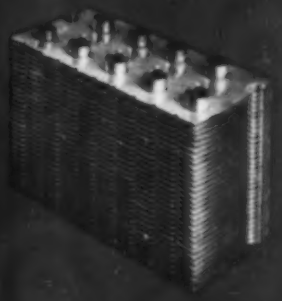

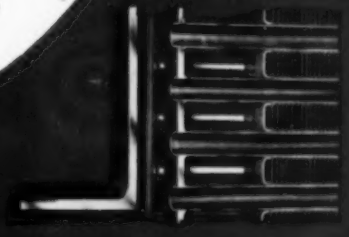

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books received

An American Synagogue for Today and Tomorrow. Peter Blake, Editor. Union of American Hebrew Congregations, New York, N. Y., 1954. 312 pp., illus., $10

The Volume of Residential Construction, 1889-1950. David M. Blank. National Bureau of Economic Research, 1819 Broadway, New York 23, N.Y., 1954. 99 pp., $1.50

Roofs for the Family. Eva Burmeister. Columbia University Press, 2960 Broadway, New York 27, N. Y., 1954. 203 pp., illus., $3.25

Yearbook of the American Society of Sanitary Engineering, 1953. Vol. 31. American Society of Sanitary Engineering, 1302 Ontario St., Cleveland 13, Ohio, 1954. 440 pp., illus.

Design for Modern Merchandising. By the Editors of *Architectural Record*. *Architectural Record*, 119 W. 40 St., New York 18, N. Y., 1954. 247 pp., illus., $8.95

Residual Stresses in Metals and Metal Construction. Edited by W. R. Osgood. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1954. 363 pp., illus., $10

The Community Builders Handbook. Prepared by the Community Builders' Council of the Urban Land Institute. Urban Land Institute. 1737 K Street, N.W., Washington 6, D. C., 1954. 314 pp., illus., $12

Vanity and Value. Francesco Memoli. Exposition Press, 386 Fourth Ave., New York 16, N. Y., 1954. 502 pp., $5

Many farsighted Architects now plan with RCA sound

Many of the men who design today's commercial and public buildings find it profitable to specify RCA Sound as an integral part of proposed construction—to provide hotels, churches, and schools with all the advantages of a fully integrated sound system *while the building is still on their drawing board.*

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the family at home

The House and the Art of its Design. *Robert Woods Kennedy. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1953. 550 pp., illus., $9*

Taken all in all, Robert Woods Kennedy has enriched architectural literature by an extraordinarily interesting piece of work. What he has tackled is the study of residential design from the psychological point of view and in the framework of contemporary social customs. Moreover, like Christopher Tunnard's recent *The City of Man*, this book presents its arguments with illustrations—in words as well as in pictures—displaying that wide range of reference and example which characterizes the well-grounded scholar and the cultivated man of the world. So rare has this quality become in books in the architectural field of late that one can overlook a few personal reactions to life and living which make some of the author's conclusions too uniquely individualized for general application by the architect, even for a highly sophisticated clientele.

The heart of the book boils down to the private opinions of an unusually gifted individual—who just happens to be an architect—on the subject of relationships between members of a family group and the interaction between the

(Continued on page 166)

outstanding achievement in functional design...

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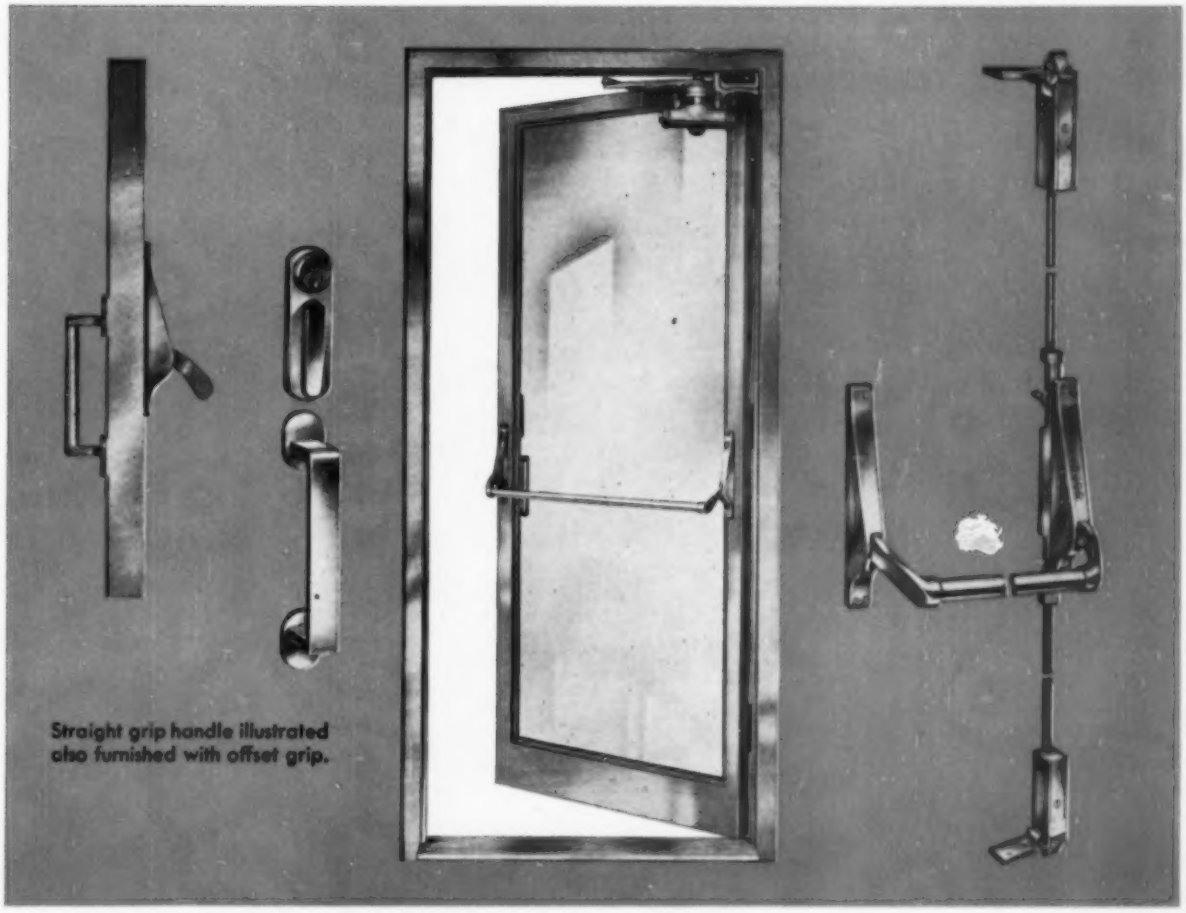
for narrow stile, hollow metal doors



Straight grip handle illustrated also furnished with offset grip.

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- **applicable to both single and double doors**
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- **bolt features provide maximum security:**
  - **Both latch bolts are swinging bolts, each operating independently of the other**
  - **Automatically deadlocking top latch bolt**
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This is the home of the Baltimore Sun and Evening Sun. Founded in 1837, the Sunpapers are credited during their 117 years of journalism with many advances in news-gathering and publishing practices.

Designed by the Baltimore architectural firm of Palmer, Fisher, Williams & Nes, the modern Sunpapers plant incorporates the most advanced facilities for publishing a newspaper. Consulting Engineers were Egli & Gompf, Inc.; Electrical Contractor, Riggs-Distler & Co., Inc.

Photograph by A. Aubrey Bodine

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"DECIDEDLY BETTER"
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● This is an out-of-the-ordinary lighting installation, one that merits your attention because it may suggest a similar treatment for your projects.

LOW-BRIGHTNESS LIGHTING IN ALL AREAS

● Too often, a distinction is made in lighting office space and production areas. Not in this case. The men at the Linotype machines in the composing room enjoy the same advantages of super-comfortable illumination from Day-Brite parabolic troffers that the editorial and office staffs do.

DAY-BRITE A LEADER

● Among fixture manufacturers, Day-Brite has been a leader in advocating increased visual comfort for industry. We believe it is sound lighting practice and a profitable investment for industry's management. We have engineered and built Day-Brite fixtures to conform with our belief.

● It is encouraging to see such a pronounced trend toward better production lighting. It is significant, too, that a great many of today's most advanced industrial installations were carried out with Day-Brite fixtures.

LOOK AT DAY-BRITE

● However you choose to upgrade production lighting for your own projects—with recessed troffers as in the Sunpapers plant, with pendant or surface mounted louvered fixtures, with upward-component heavy duty industrials—look at Day-Brite . . . *feel* the difference . . . before you specify.

● We think you'll find the "extra something" you need to make your lighting installation the finest you've ever done.

THE SUN'S COMPOSING ROOM. Even without the acoustical ceiling which is still to be installed, the Day-Brite Alzak parabolic troffers here transform this room into an extra comfortable working area, comparable to the finest office space. A sensible approach, too, because mistakes and inaccuracies are just as costly here as in the office.

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Close-up of Sylvania Sono-Lume unit showing perforated metal wings backed with sound-deadening glass fiber batting. Fixtures may be also equipped with louvers instead of plastic shielding. Mounted singly or in continuous rows.

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Basically, Sono-Lume is an attractive fluorescent fixture incorporating principles worked out by Sylvania engineers.

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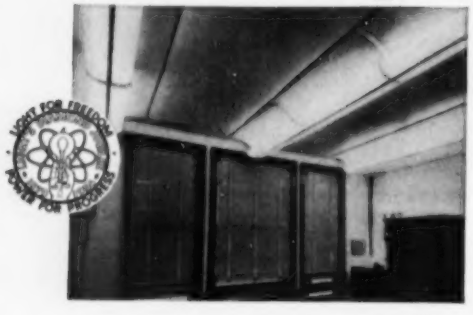
Saves modernization costs! Sylvania Sono-Lume fixtures can be readily installed in any office, conference or consultation room. In instances where sound-proofing and better lighting are separate projects, this new combination fixture keeps costs well within modest budgets. A note on your letter-head will bring you detailed information. Simply address Dept. 4X-4308, at Sylvania.

*Sylvania Trade Mark
†Patent Pending



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reviews

(Continued from page 162)

household and outsiders, as these affect and are affected by the design of the house. Kennedy's research into the importance of privacy, for example, and the frequency and significance of contacts between the various generations, servants, and guests using a house, contains much new and well-thought-out material. It should give every architect who is seriously concerned with designing a house to fit a human situation cause to stop and think through, to new conclusions, how the *spaces* and *dividers* in a modern home should be laid out. Kennedy's often novel and always wholesome and logical concepts of the use of the various areas and openings customarily associated with residential construction seem valid and worth testing by others. That lucky part of the building public which can afford to ignore the stifling and mediocre conventions imposed by the real estate market, the mortgage broker, the rigid building code and, in many cases, the manners and mores of the average community, could especially benefit by the application of many of Kennedy's precepts.

For all Kennedy's breadth of scholarship and depth of thinking, his seems a strangely limited point of view in at least one important respect. For, to assume that a client can ignore both economic and social considerations, may be all well and good. But no matter how free he may be of budgetary worries or of conventional habits, his home, unless it is on an island or a remote mountain top, is inevitably part of some community. And, while Kennedy discusses the community—and even the neighborhood—in relation to the proper choice of site, location and situation *for the house*, the vice versa of this proposition is missing. His chapter on Environment, for example, gives no thought to the relation of the house and its occupants *to the community* of which even the most affluent sophisticate necessarily is a member.

Like the novels of Thomas Wolfe, Kennedy's book is prodigious and undisciplined. It is bursting with ideas—enough to make a dozen books—and it also con-

(Continued on page 172)

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Moreover, AGITAIR square and rectangular diffusers are now available with or without removable, interchangeable cores. AGITAIR also brings you Stripline, the slender, continuous air diffuser with unlimited application versatility.

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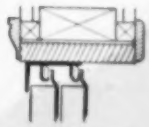
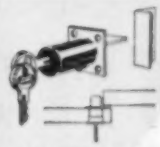
Satin Aluminum Track with Apron—Adjustable Hangers With Nylon Rollers



Standard Header . . Track Apron is Trim. Only 1" Headroom



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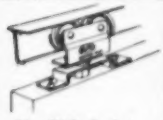

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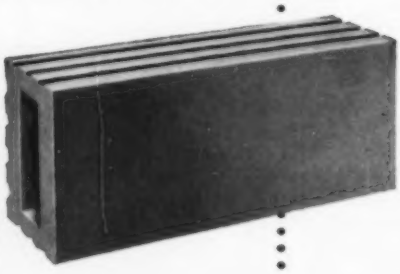

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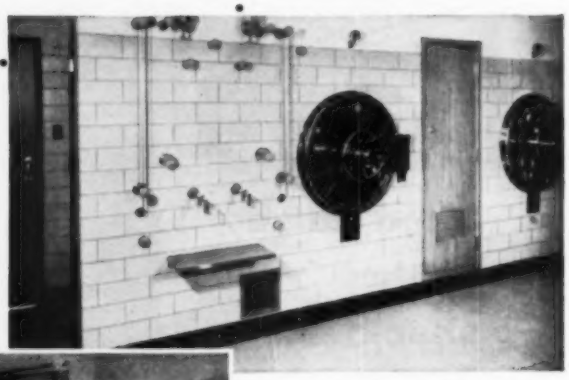

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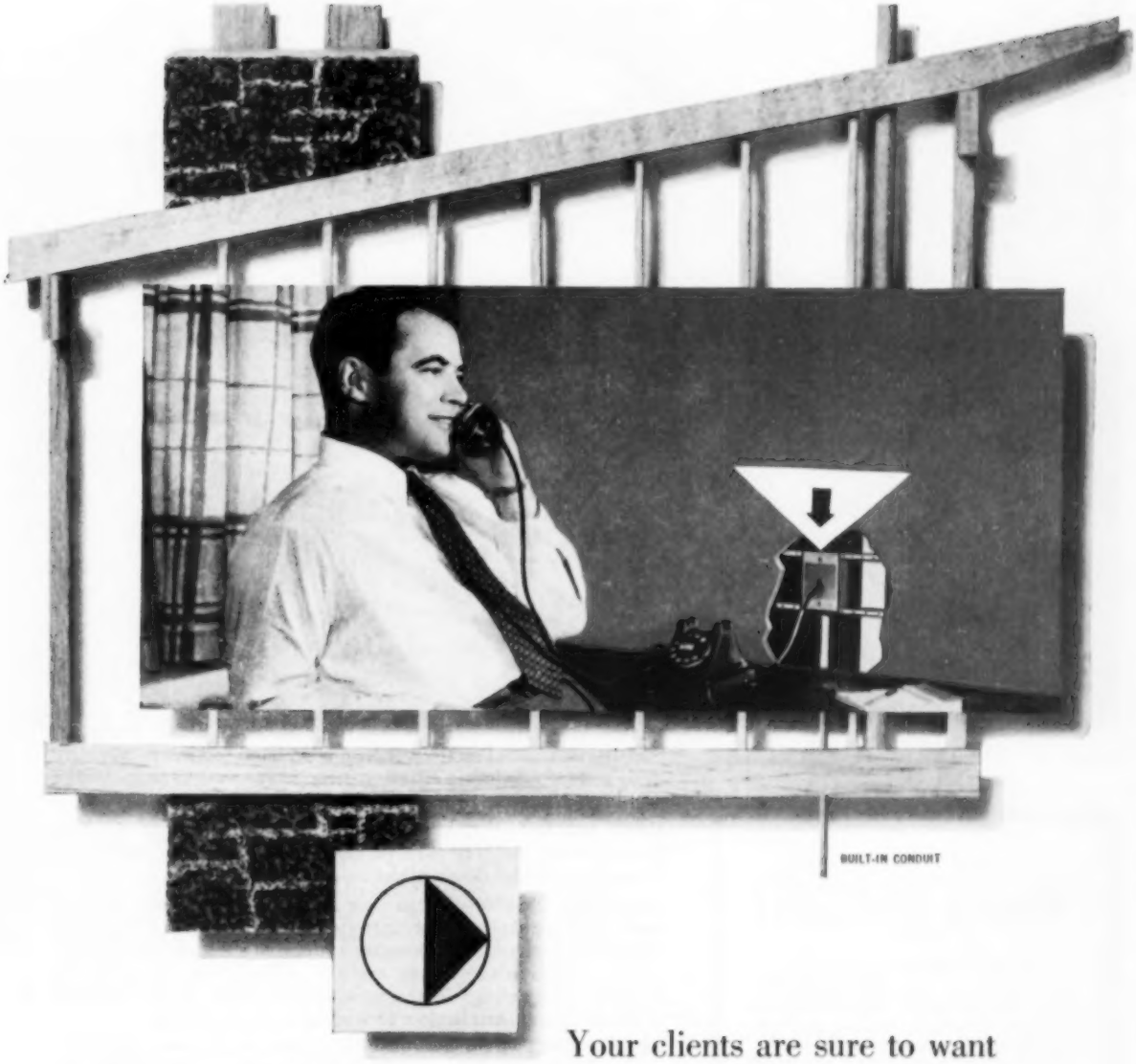

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Penmetal **LIGHTSTEEL** structural sections are fabricated from structural-grade, strip steel by cold forming and are designed specifically for strength, light weight and low cost. Now, for the first time, the light building field can adopt steel framework *economically*.

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★ Its low "k" value provides more insulation in relation to thickness.

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(Continued from page 166)

tains a great deal of superfluous matter and repetition that could just as well have been left out. Undoubtedly this is as much the fault of editing as it is of writing. Editing could have simplified a great deal of its obscure and turgid prose. Cut down to manageable proportions and whipped into more presentable shape, it might have been a remarkably helpful handbook on the planning of modern homes for what *Harper's* and *Life* once called the "upper-middle-high-brow" set.

If a good handbook on individually designed upper-class houses could have filled a well-edited and well-organized book all by itself, we have here the raw material for several other volumes, each on a number of interesting subjects. For example, one chapter provides an excellent, analytic review of the history of domestic architecture in the United States, a topic which has seldom been approached from the point of view of the contemporary designer. Another treats of architectural symbolism, as seen in designs provocatively selected from all periods—classical, renaissance and modern—with remarkable imagination. Still another discusses architecture in terms of the psychological analysis of human behavior patterns, something that obviously has a bearing on the expensive private home, but is just as important to consider in all types of residential architecture at whatever income level. This subject, too, considered as carefully and in the detail to which Kennedy explores it, could well have merited—and still could be made into—a separate book.

The book has a number of minor shortcomings which are unfortunate in what is, on the whole, so fine a contribution to architectural thinking. Perhaps some of these may be taken care of in a future edition. For example, the illustrations, while original and striking, have been scattered through the text in a curiously disorderly way, as to size, scale, and manner of reproduction. If this was intentional, so much the worse, for it tends to be confusing and distracting rather than illuminating. The frequent absence of captions, too, is irritating to a reader who may not always perceive the bearing of the plans and pictures on Kennedy's argument in the way he intended them to "count." The insertion in the text of quotations, like the illustrations, is so done that it is difficult to check on their source or easily to follow their intended context.

There have been some well-justified strictures uttered of late, by critics of architectural writing and teaching, on a tendency towards superficiality and the purely topical approach—the lack of depth, in other words, apparent in the treatment of architectural subjects in books and periodicals appearing these days. No one can accuse Kennedy of not going deep enough into his subject. If anything, he has dived so deeply into the sea of psychology that he seems to

(Continued on page 174)

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THE ROOF of the new Walnut Grove School, West Mifflin Borough, Allegheny County, Pa., is USS Stainless Steel. Architects: Button and McLean, Pittsburgh, Pa. Contractor: Nicholas LeDonne, Clairton, Pa. Roofing contractor: Limbach Company, Pittsburgh.

New Walnut Grove School has a maintenance-free roof of Stainless Steel

● The school board of West Mifflin Borough, Allegheny County, Pennsylvania, took care of roof maintenance almost permanently when the new Walnut Grove School was built. They did it by specifying a roof of long-lasting USS Stainless Steel.

The roof is approximately 385 feet long and 75 feet wide. The Stainless Steel roofing panels have a satin-type architectural finish. They are of 26-gage material fabricated into a standing seam panel 27⅜" wide by 12 feet long.

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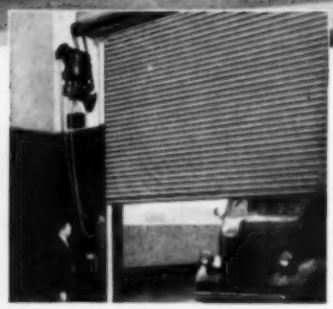

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reviews

(Continued from page 172)

have gotten lost in the lush submarine foliage and is somewhat bewildered when, occasionally, he comes up for air to get his bearings. ROBERT C. WEINBERG

building a castle

The Castles of Great Britain. *Sidney Toy. The British Book Centre, Inc., New York, N. Y., 1953. 276 pp., illus., $5.50*

Readers who yearn for a castle of their own as well as readers with more modest aspirations may acquire much interesting information about many of the best of Great Britain's castles — from Roman times to the period when fortified homes were supplanted by practically undefended mansions. In this collection, the author has assembled plans and structural details of a large number of castles and fortresses. Toy, who has already written an earlier history of fortifications, has brought to his work an evident enthusiasm for his subject.

Nearly 100 castles and fortifications are described in considerable detail, accompanied by photographs and plans. The descriptions of these castles show the author's great interest in the military features, including the selection of the site, the mode of construction, the arrangements for defense, and the special features which enabled them to withstand prolonged sieges. Few of these castles could have been comfortable living quarters for they were, of course, dark, damp, cold, and crowded. The interesting historical details supplied by the author indicate, however, that many of them were occupied for many hundreds of years and by their strength and position successfully dominated large surrounding areas.

The competition between the offense and defense is well illustrated by the author in his descriptions of the development of the powerful siege engines of the Middle Ages and the architectural features which were developed to strengthen the resistance of fortifications to these attacks. In a separate chapter the weapons and techniques used in be-

(Continued on page 180)

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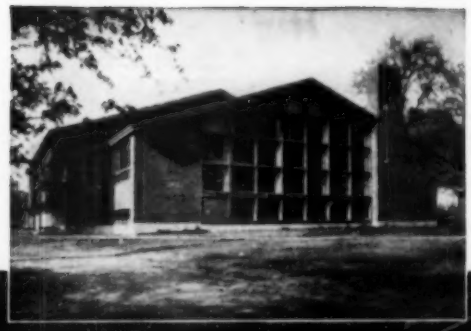

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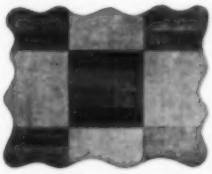

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reviews

(Continued from page 174)

sieging a castle are described, together with details of actual siege operations.

The reader will find in this book many examples which illustrate that many basic principles of military art have remained the same throughout the ages. In his invasion of England, for example, William the Conqueror had prepared a prefab timber fort which was completely assembled in France, then dismantled and taken on board the ships of the invasion fleet. In England it was re-erected and readied for defense by the evening of the day the fleet arrived.

Because of its arrangement, the book is almost equally rewarding whether read from cover to cover or browsed through and read at random, a chapter at a time.

VAN CLEAF BACHMAN

sincere and human

The Northwest Architecture of Pietro Belluschi. *Edited by Jo Stubblebine. An* Architectural Record *Book. F. W. Dodge Corp. 119 W. 40 St., New York 18, N. Y., 1953. 100 pp., illus., $6.50*

In a world of "isms"; in the architectural world where extremist tyros vie for place; at a time when show and ersatz, the easy slogan and the short cut, exert so strong an influence on our lives, it is, in this reviewer's opinion, reassuring and heart-warming to find a talented architect creating work of excellence that is sincere, humble, and human in both character and scale. That Pietro Belluschi left Portland, Oregon, in and near which so much of his work has been built, to come East and assume the duties of Dean of M.I.T.'s School of Architecture and Planning, is the Northwest's loss and the architectural student's gain. Tomorrow's architecture is bound to be the better for it.

Born in 1899 of middle-class parents in Ancona, Italy, Belluschi testifies that rebellion against this environment gave him a stronger motivation for artistic expression even than the pervading beauty of Rome. "My desire was to differ, not to emulate," he says. Coming

(Continued on page 184)

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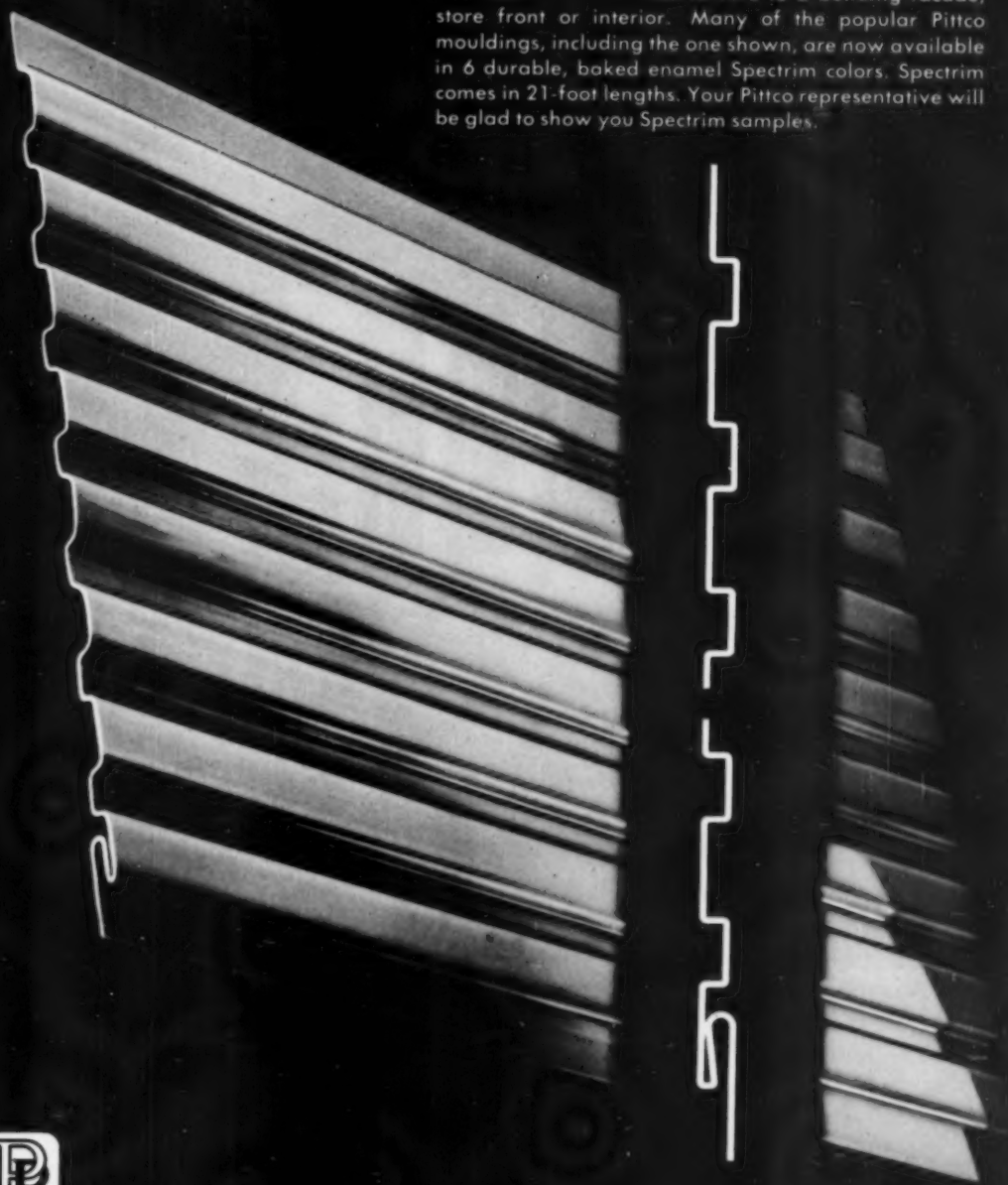

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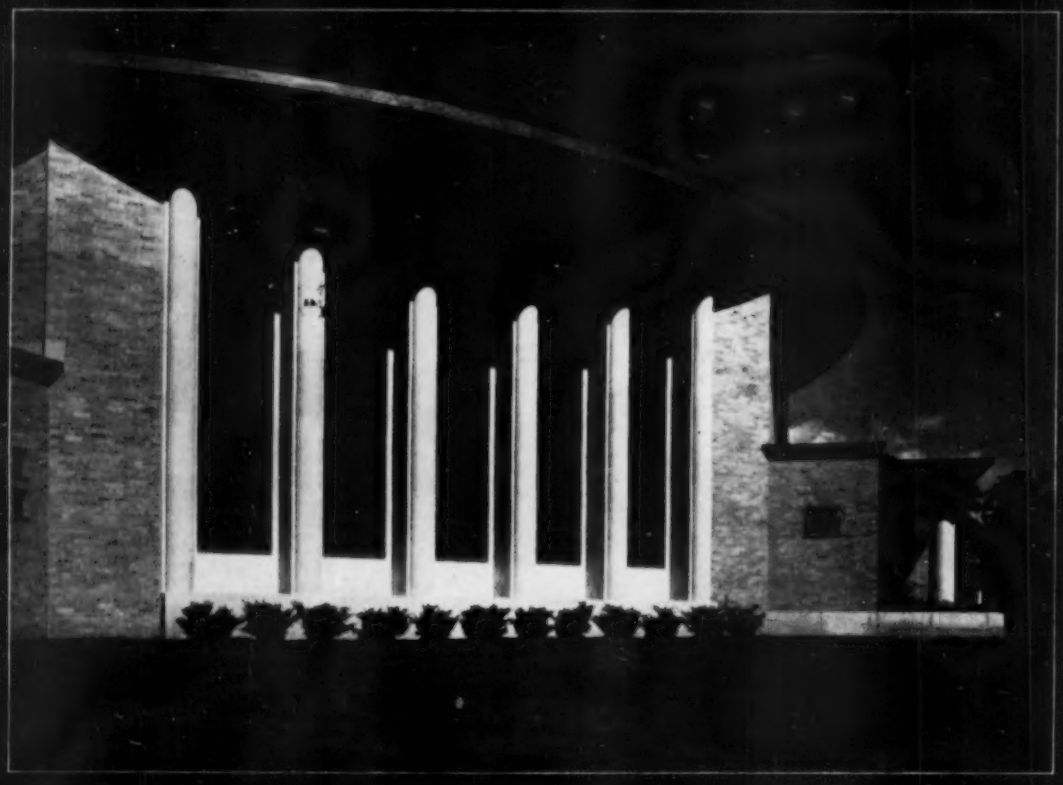

Blessed Sacrament Church, Holyoke, Mass.
Chester F. Wright, Architect *Daniel O'Connells' Sons, Inc., Contractor*

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Hope's new method of double glazing permits either protective exterior glass or decorative interior glass to be removed at any time for replacement or repair without disturbing the glass in the other side. The widest choice in sizes and design of glass and utmost flexibility in arrangement of ventilators provide almost unlimited variety in layout for the designer. The unsurpassed strength and rigidity of Hope's Steel Windows assure trouble-free operation and a minimum of maintenance.

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Because of scientific tests like these, every tile shipped has precision-straight edges and true right-angle corners. That means installation ease and economy. Further, Kentile's manufacturing techniques and tested ingredients mean that every tile is tougher, more durable, easier to clean...with lasting brilliance of color and uniformity of marbleization. But, get full details when you consult the Kentile Flooring Contractor. He's listed under FLOORS in the Classified Telephone Directory.

Specifications and Technical Data

INSTALLATION: Over any smooth, firm interior surface free from spring, oil, grease and foreign matter...over metal, wood, plywood, concrete, radiant heated concrete slab, concrete in contact with the earth; on or below grade.

THICKNESSES: Kentile is available in two gauges: 1/8" for residential and most commercial uses—3/16" for industrial use and where extra-heavy duty flooring is needed.

SIZES: Standard tile size is 9" x 9".

SPECIAL KENTILE: Greaseproof asphalt tile for industrial uses in a wide range of marbleized colors—extremely resistant to petroleum and cooking greases and oils, alcohols, alkalis and most acid solutions.

Approximate Installed Prices (per sq. ft.)

	1/8" Gauge	3/16" Gauge
KENTILE: A Colors	20¢	25¢
KENTILE: B Colors	25¢	30¢
KENTILE: C Colors	30¢	40¢
KENTILE: D Colors	35¢	40¢
SPECIAL KENTILE	40¢	50¢

These costs are based on a minimum area of 1,000 sq. ft. over concrete. Color groupings range from Group "A," the darkest solid colors... to Group "D," the lightest marbleized colors. Special Kentile is available in Regular and DeLuxe Colors.

The ability of Kentile's top-grade raw materials to flow properly during calendering is measured by a *Mooney Viscometer.*

This *electronic Color-Eye* records the shade of each Kentile color to help preserve uniformity of tone from one run to the next.

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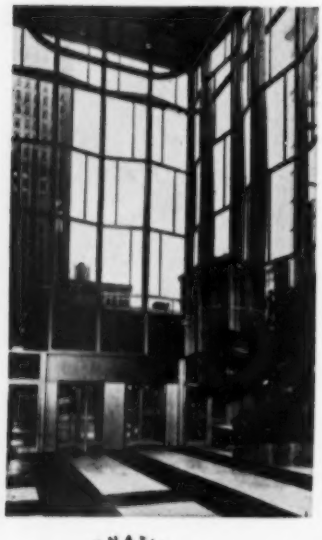

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reviews

(Continued from page 180)

to this country in 1923 on an exchange graduate student scholarship, he migrated to Portland two years later, joined the established firm of A. E. Doyle, became its head designer, and eventually acquired the firm and, in 1943, changed it to his own name.

Belluschi's own directness and sincerity found architectural focus and a rich source of inspiration in the simplicity and honesty of native structures such as the sturdy barns of the region. And it was not long before a whole succession of distinguished buildings — houses, churches, a museum—emerged from the Doyle-Belluschi office. In later commercial structures, the logical, unassuming approach that one had learned to associate with Belluschi's design continued to be evident. And in the sparkling Equitable Building in downtown Portland, he produced perhaps the neatest integrated-design expression of skeleton frame, concrete floor slab, and curtain wall yet to appear.

The book is made up of transcripts of various speeches that Belluschi has given over the years—and illustrations of and descriptions of many of his more interesting commissions.

His dedication and optimism, which are happily wed to a practical business mind, are reflected in statements in his writing: "I believe a better environment for a happier mankind is in the making. It is a task to excite the imagination. . ." Speaking of the architect, "unless he is above all a man of vision and an expert in the field of visual and spatial relationship; unless he is able to give form and order to space; in brief, unless he is a creative and understanding artist, he will not fulfill the peculiar role society expects of him . . . Each one of us needs the power of poetic expressions which he may use without compromising practical dictates; he must strive for formal order and proportion without being dominated by its formulas; he must understand the pervading power of technology without forgetting the primacy of the human soul and its thirst for sensuous variety; he must create with humility and discipline

(Continued on page 186)

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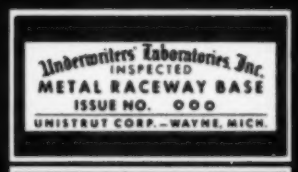

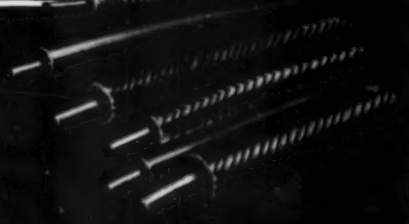

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reviews

(Continued from page 184)

from what lives around him, look with awareness upon the 'great American scene,' and with sympathy and even love upon its people, believing that it falls on each one of us to work for their advancement and for the enjoyment and fulfillment of their lives . . . Beauty is yet our greatest motivating ideal, and the search for it our greatest source of strength."

For like-minded persons,* this is an inspiring book, as well as a long-deserved compilation of some of the best work of one of our best architects.

**Frankly, this reviewer has procrastinated about discussing this book for a long, long time. Not because he does not admire Pietro Belluschi and the architecture for which he is responsible. Quite the opposite! He admits to so strong a bias in favor of both the man and his work that he has felt—and still feels—unable to be wholly objective about either. Well, so be it.* GEORGE A. SANDERSON

unified discussion

Statics and Strength of Materials. *Roland H. Trathen. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y., 1954. 506 pp., illus. $7.50*

This is a carefully written text on a fundamental science, prepared by an Engineer and Professor with extensive practical and teaching experience. Its coverage is similar to existing books but it differs from them in that topics in statics and in strength of materials have been unified and are taught concurrently, rather than being presented as separate and individual subjects.

The book does not endeavor to eliminate or simplify the mathematics attendant to the subject but, rather, Trathen has made a point of stressing the proper balance between physical thinking and mathematical thinking. He contends that the science of mechanics has been brought to its present state by a judicious mixture of the two ways of thinking.

The text is intended for the engineer-

(Continued on page 188)

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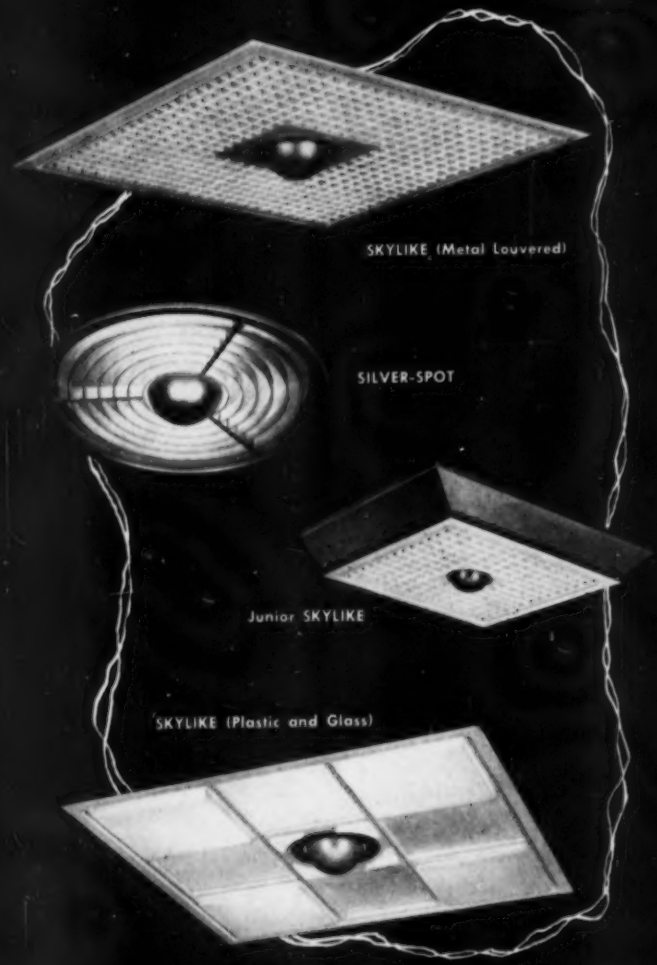

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reviews

(Continued from page 186)

ing student and should form an excellent base for later and more advanced studies in structural analysis and design. It is freely illustrated and includes an abundance of interesting problems.

Trathen is Professor of Mechanics at Rensselaer Polytechnic Institute.

DONALD G. RADWAY

the tool and the myth

The Modulor. *Le Corbusier. Translation Peter de Francia and Anna Bostock. Second Edition.* Printed in Great Britain. Distributed by Harvard University Press, Cambridge, Mass., 1954. 243 pp., illus. $5*

Bertrand Russell once said that "what is most remarkable in modern science is its return to Pythagoricism." It is even more remarkable that the Sage of Samos has dominated Western art from the time of the Crotoniatic State to the present day without any noticeable interruptions. The number-idea, the one as the same and the two as the other; analogy, as the equality of two ratios; rhythm, as perceived periodicity; and harmony, as the unity of the multiple, have shaped Western art — transcending religious faiths, political forms, a variegated geography, and time itself. From Vitruvius to Seurat and from Plato to Valery there is an amazing continuity. Since Orpheus gave ground to Apollo, automatic, intuitive, or irrational approaches to art—as well as reasoned, calculated processes—have been supported by a framework of mathematical order.

It is true that in architecture, since the middle of the last century when schools teaching this art were well established, a separation from the Pythagorean doctrines was beginning to take place. It was the time of the great practical men, of Saint-Simon and his many followers. The concept of architecture as the automatic result of compiled data was probably due to a mechanistic interpretation of the dialectics function-form: but the fact that the student architect was facing a number of seemingly unre-

* *First edition in French.* L'Architecture d'Aujourd'hui. *Paris, 1950.*

lated disciplines must have contributed also toward the exclusion of a basic structure from his work.

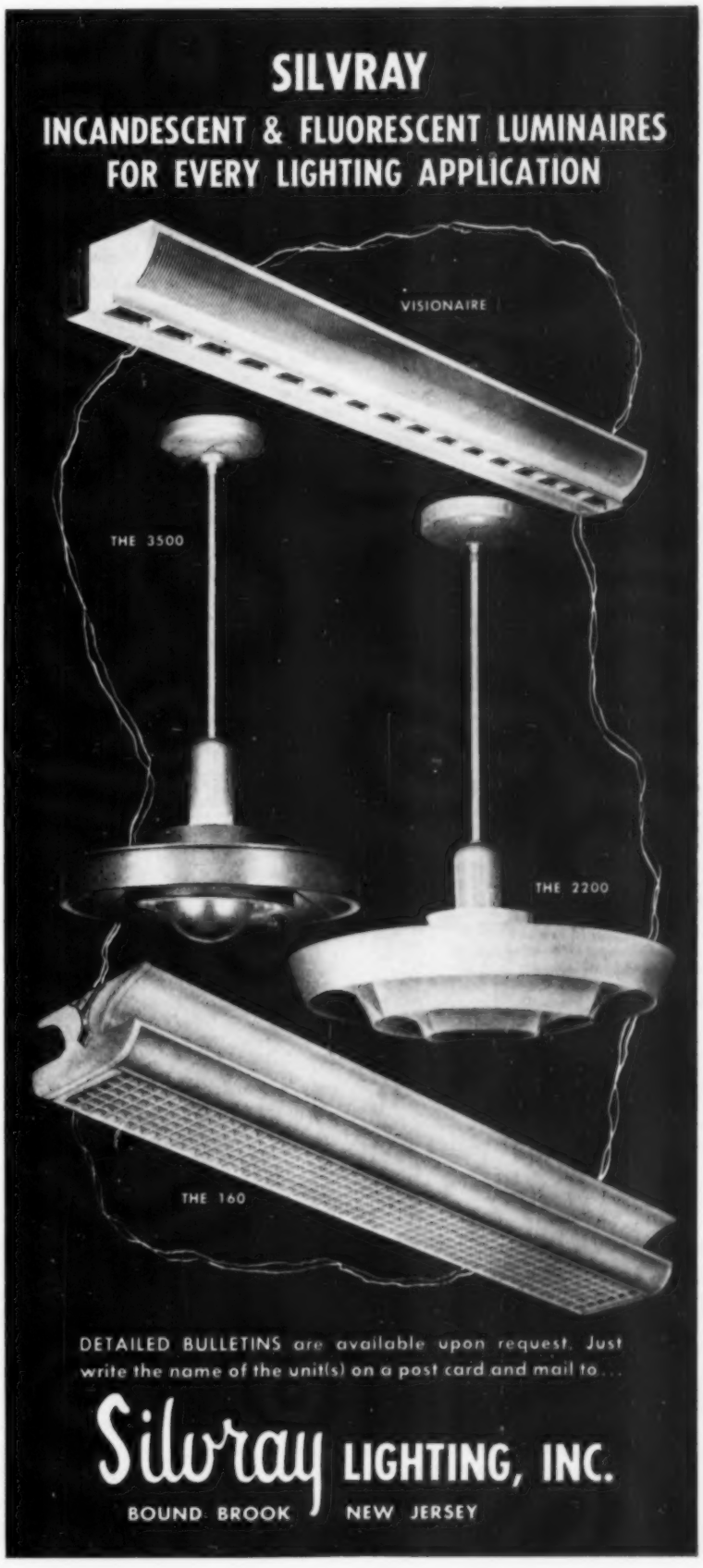
If the separation of architecture from the Pythagorean doctrines became general, it was far from being total. Le Corbusier, an exponent of the "Cartesian spirit," often produced, like Palladio, the mathematics of a villa. However, Le Corbusier must have found from experience that the workings of symmetry,[1] that is to say the relationship of the whole to its parts, was perhaps less suitable to the complexities of modern life to which architecture has to respond. After many years of trials and errors, he has presented the Modulor as an answer.

Modulor is an humble road to symmetry, leading from the parts to the whole. A mere assembly of numerical values, the Modulor, like a succession of stones in a masonry wall, should eventually help the user to produce in his work the chain of characteristic ratios linked by a common multiple, which is symmetry. The late Henry William Roberts of Ipswich, architect and lecturer, developed the "set triangles" as an aid to symmetrical design; there is one among them, a right-angle triangle, the two sides of which are *Phi* ratio. Dr. Funk-Hellet offers the *Phi* compass (a reduction divider set at *Phi*) and the TCD Triangle (Triangle containing the Co-ordinates of the Decagon) the angles of which are 90, 54, and 36 degrees. The TCD triangle facilitates pentagonal formations but all the above aids controlling the parts by the whole are not especially suitable to an additive method. It is safe to say that if there were to be a broad application of the Modulor in the future this should be attributed to its elemental character: it is the tool for an additive process to symmetry, a process itself quite novel in the history of architectural design.

The basic shape of Modulor is the square which, with the triangle and the hexagon, is the pattern of formation of inanimate matter (particularly of crys-

(Continued on page 190)

[1] *Commodulatio or Concinnitas, at the time of Renaissance.*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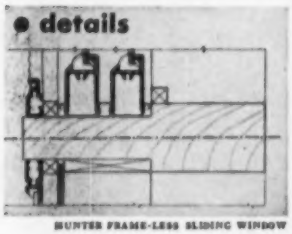

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reviews

(Continued from page 189)

tals, such as table salt). By numbering the sides of the square—1, 2, 3, 4—we have the basic Pythagorean numbers adding up to 10, the Tetractis.

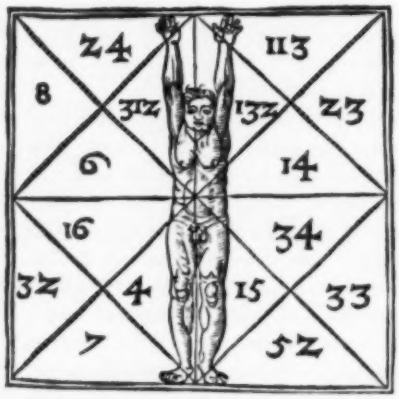
The basic ratio of Modulor is *Phi*, thus producing a link with the pentagonal formations of animate matter and the patterns of growth.

The basic numerical value of Modulor is the height of man, set at six feet, relating an abstract geometrical scheme to the human dimensions.

The only angle of Modulor is the right angle. The "ideal" angle of Church—220 degrees, 29 minutes and 32 seconds—is absent.

From the formula *a* plus *a* over *Phi* equals 72", and *2a* minus *2a* over *Phi* equals 33.992" (*a* being the side of the square); two *Phi* progressions are developed tending toward zero and toward infinity, approaching asymptotically the Fibonnaci series.[2] The first progression is called by the author, *red;* the second, *blue.* The terms of both progressions as co-ordinated form a *red* grid and a *blue* grid, which are offered to the designer as a spatial vocabulary.

But Le Corbusier undoubtedly knows that the usefulness of a tool does not warrant its universal acceptance. A myth is the safest entrance to history, so a large part of this book is a skillful attempt to create the necessary mystique upon which the future usage or abandonment of Modulor will depend. A number of pages form a frenzied log carrying the reader through time and over three continents. Dramatis personae make their appearance—from Kaiser of the Liberty ships and Wachsmann of the General Panel, Einstein and J. L. Sert, to more humble researchers like Hanning and Taton. Contradictions, if not plain rebuttals, are purposely maintained, such as on pages 179 and 180. The gap between metric system and foot-inch measurements is emphasized, with the Modulor presented as the logical link between the two. It is also significant that the first public appearance of Modulor took place in New York the spring of 1947 at the annual meeting of the American Institute of Decorators, instead of the more quiet grounds of the *Quai Voltaire.*



In our present agonizing reappraisal of the realities of our planet, Modulor may fail to attract all the attention which it deserves. But the seeds for a future renaissance are here, this reunion of the practical and sublime. STAMO PAPADAKI

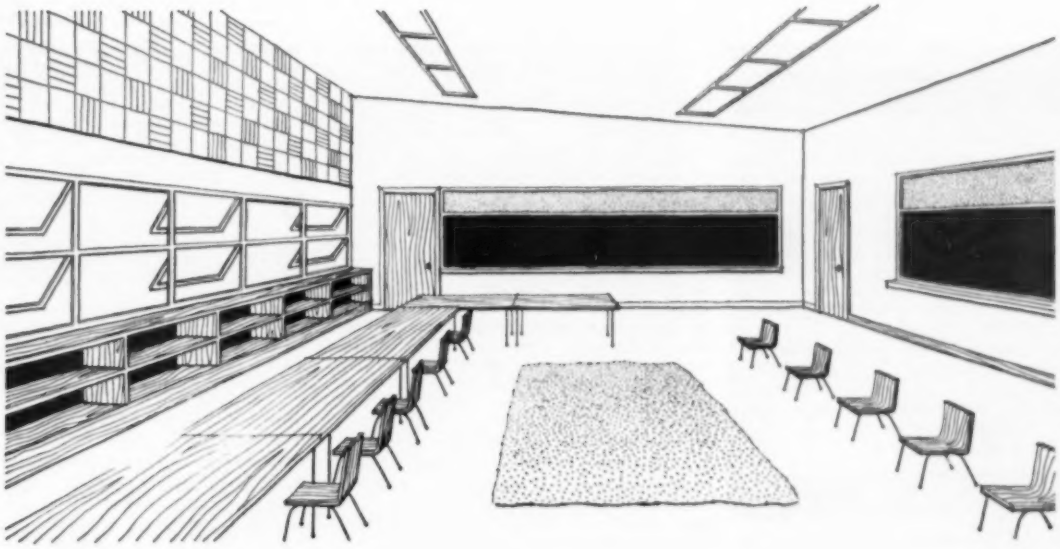
[2] *The tenth Pythagorean series of proportion, 3,5,8,13, etc., rediscovered by Leonardo of Pisa in 1022.*

notices

HILLYARD CHEMICAL COMPANY, Floor Treatment Manufacturers in St. Joseph, Mo., announce that the Eastern and Western Sales Divisions have opened new plant facilities in Passaic, N.J., and San Jose, Calif. Now in full operation, the new buildings are providing more direct facilities for distribution of Hillyard products and floor service in important east coast and west coast trade areas.

consolidation announced

Consolidation of sales and executive departments of the JANITROL DIVISIONS of SURFACE COMBUSTION CORP., with manufacturing and engineering units in Columbus, Ohio, has been announced by FRANK H. ADAMS, President. Executive, sales, advertising, and sales promotion activities will be located in the Columbus offices, after April 1, at 400 Dublin Ave. The Janitrol Heating and Air Conditioning Division manufactures residential, commercial, and industrial space heating and cooling equipment. ROBIN A. BELL has been appointed General Manager of Janitrol Divisions.



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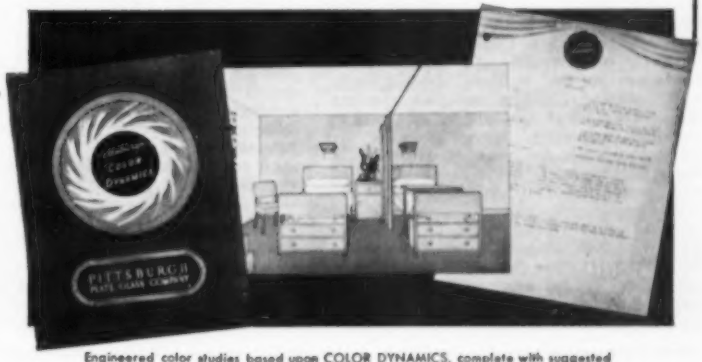

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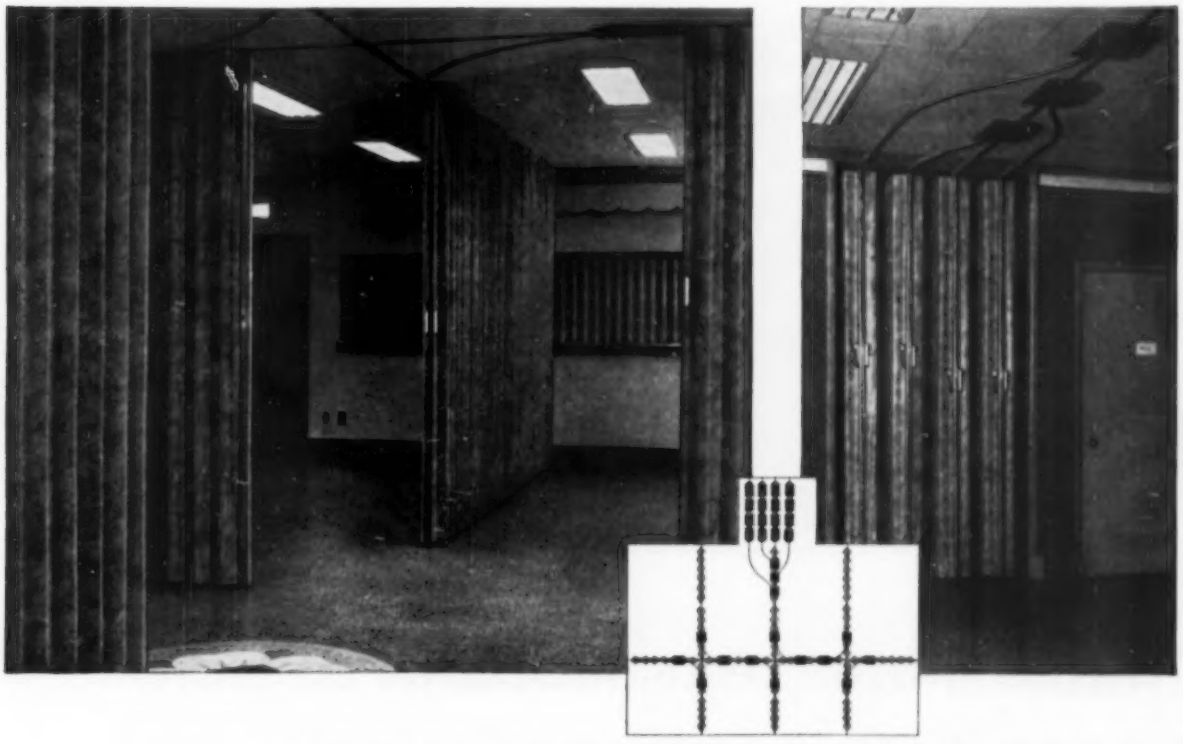

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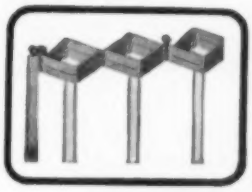

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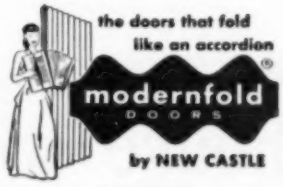

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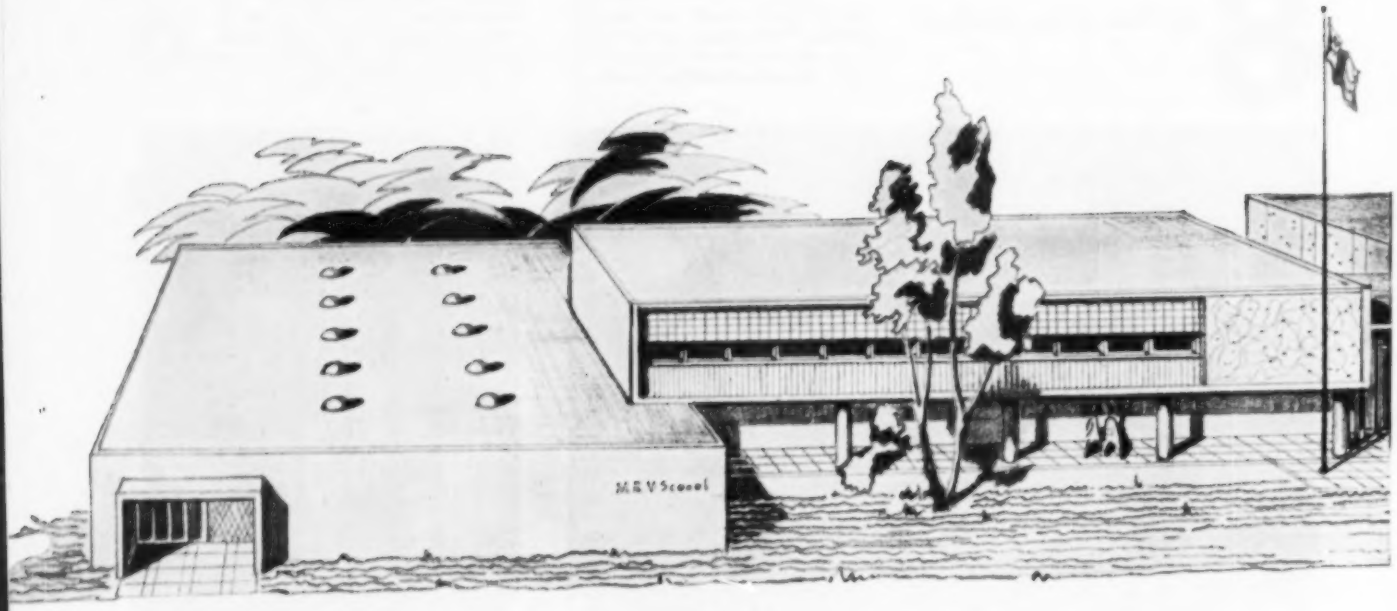

IT TAKES MORE THAN MODERN DESIGN TO KEEP SCHOOL BOARDS HAPPY

We're talking about modern electrical practices that complement modern design and directly effect a majority of the functions a building must perform.

We're talking about the kind of controlled lighting and power facilities it takes to provide:

completely adequate and dependable power for the many electrically operated building services;

safe, positive power control through modern, automatic protective devices;

electrical flexibility to meet future expansion programs easily and economically.

Those are things modern electrical practices mean. Certainly, they are an integral part of the building that should be weighed heavily in the study stage and developed as a part of your design planning.

If carried out properly, this objective is automatically realized: You have matched the electrical facilities to the standards you've set for design. And, you'll be giving the school board a better building—one that provides for the maximum comfort, safety and well-being of its students.

A call to your nearby Westinghouse Office will bring a construction application engineer ready to help you integrate modern electrical practices into your next school design. Get in touch with him during the study stage. Westinghouse Electric Corporation, 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pa. DP-5005-A

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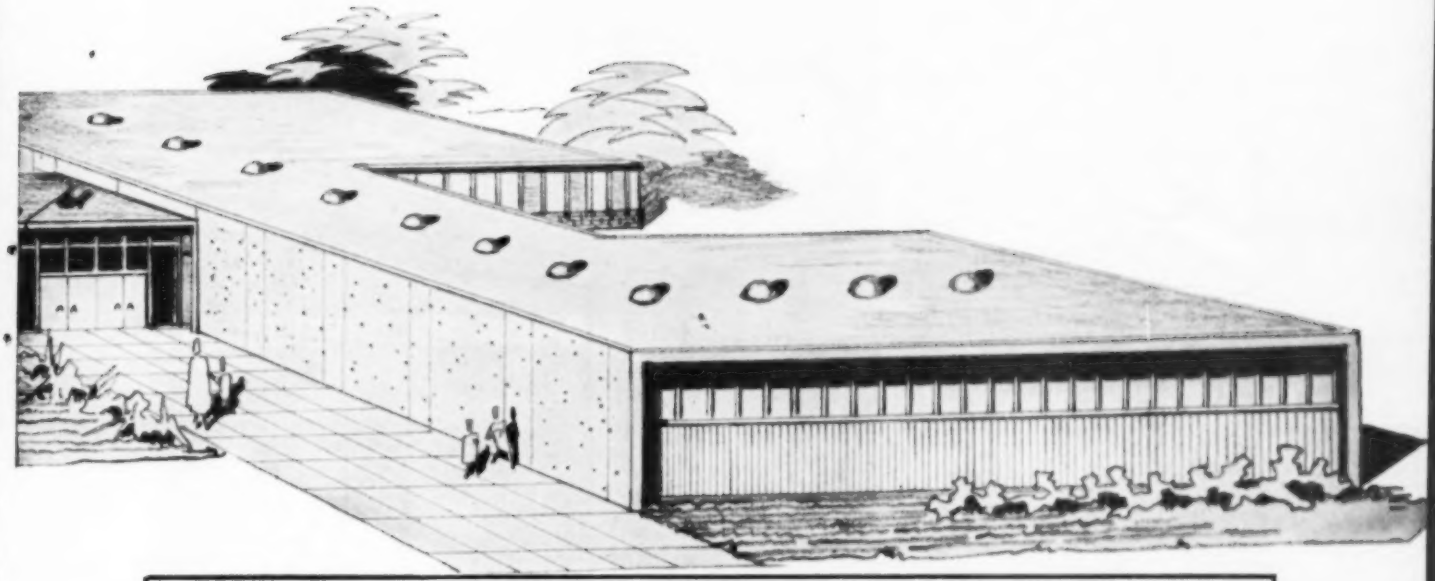
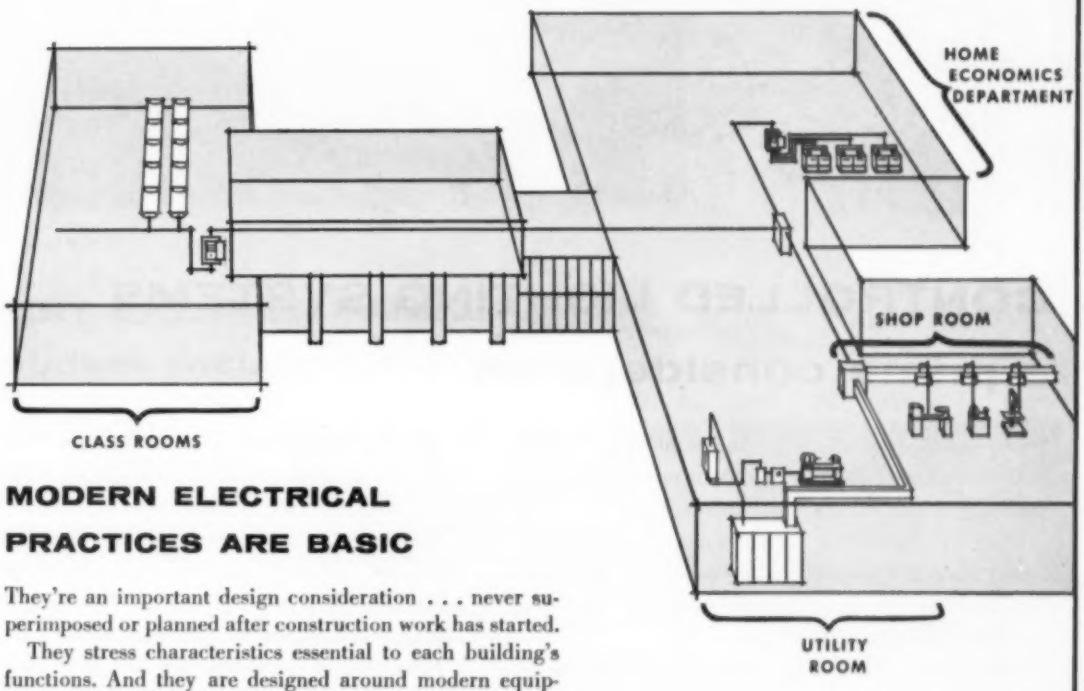


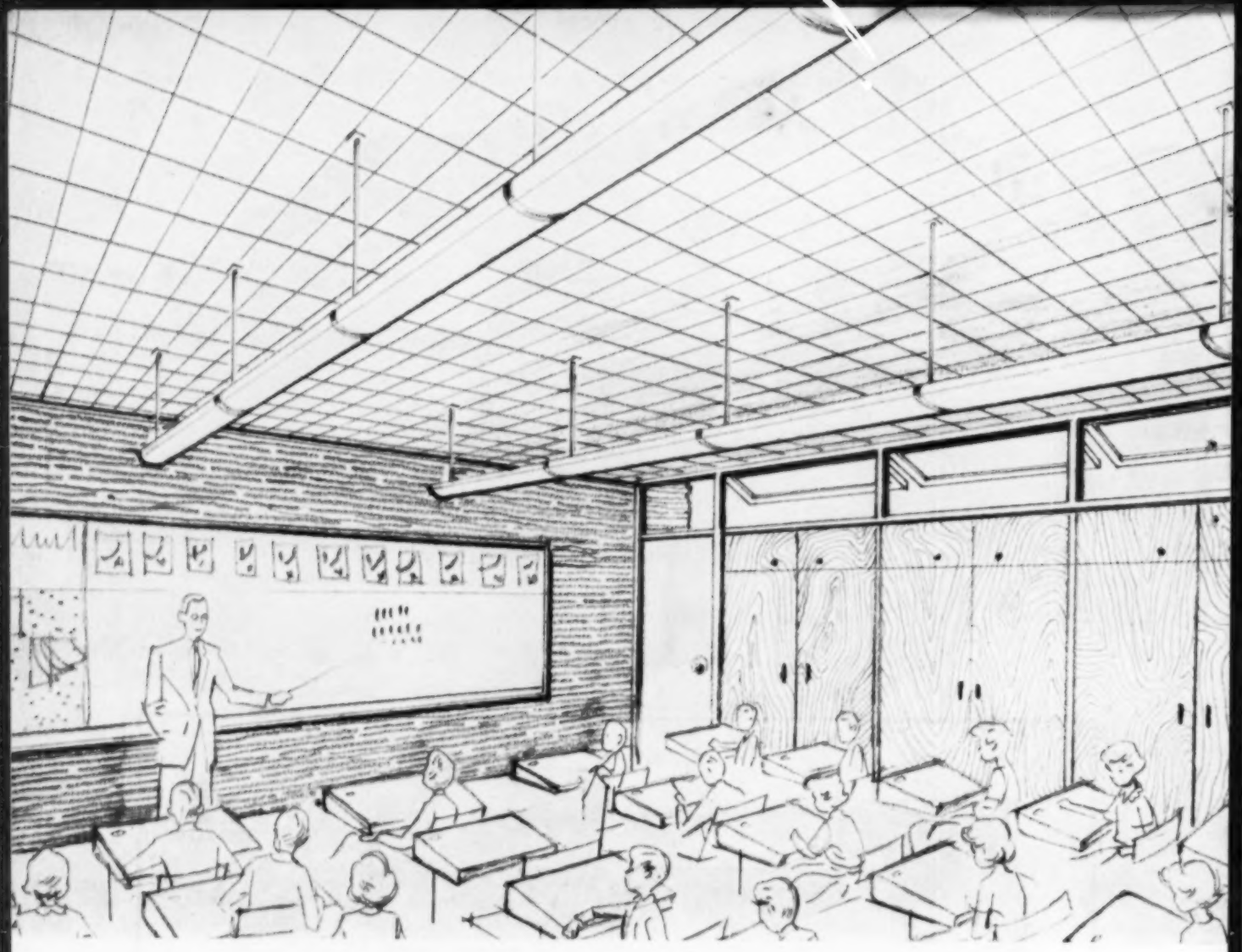


MODERN ELECTRICAL PRACTICES ARE BASIC

They're an important design consideration . . . never superimposed or planned after construction work has started.

They stress characteristics essential to each building's functions. And they are designed around modern equipment—electrical "blocks" that build electrical reliability, safety and convenience... and have the inherent versatility to handle changing power loads easily and economically.

Specific examples of modern electrical practices as well as the "blocks" that serve as their foundation are shown on the next four pages.



CONTROLLED LIGHTING SYSTEMS . . .
a prime consideration

Where practical, we all realize the desirability of taking full advantage of natural light. As a primary lighting source, however, it has these disadvantages:

It cannot cover the entire classroom adequately. On bright days, it is uncomfortable—unless you block out the glare. On dark days, it is inadequate—far below the required lighting level.

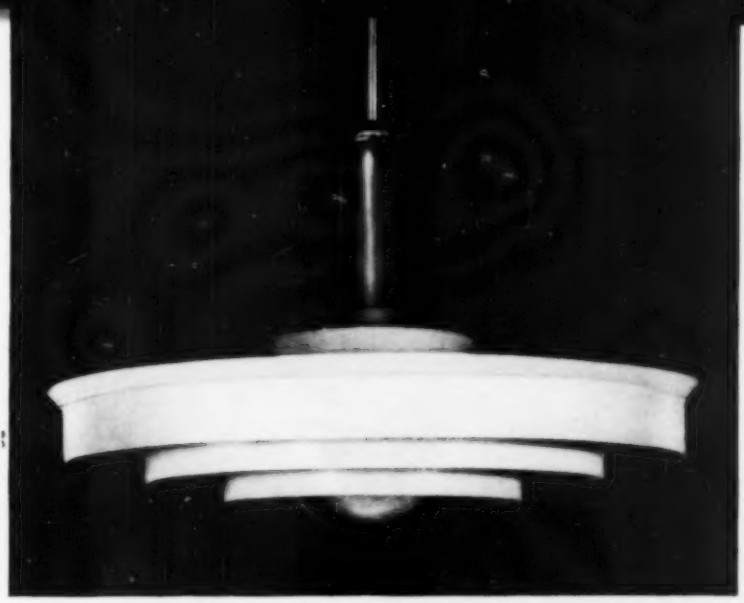
And the trend to lower ceiling heights and larger classrooms is further eliminating daylight as a principal lighting means.

Therefore, it is a basic architectural assignment to provide adequate *controlled* lighting systems . . . for day-in, day-out use . . . in all parts of the room.

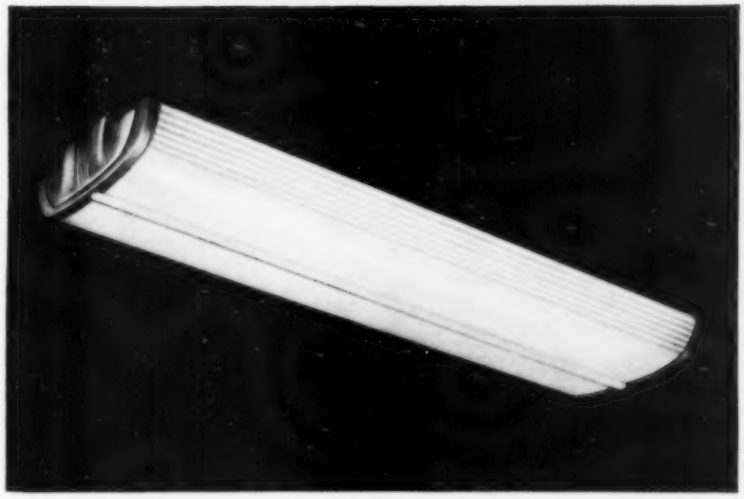
The two basic sources—incandescent and fluorescent—shown on these pages are completely modern and blend well with building design.

Economically, incandescent would seem to be less expensive. But that's only from an initial cost standpoint. Over-all, your client will find fluorescent systems less expensive to operate and maintain.

Regardless of the system you design, *if done well* it will provide adequate wiring for future lighting improvements. Proper installation of an incandescent system today means that a change-over to higher level fluorescent lighting can be made tomorrow without a need for rewiring. DP-5005-B



Concentric Ring Incandescent luminaires are low in first cost to meet quality lighting requirements when initial funds are limited. Metal rings shield silver bowl lamps—eliminating glare and shadows. All light is directed to the ceiling.



CD-160 Semi-Indirect Fluorescent luminaires spell the ultimate in comfort for classroom lighting. They direct 72% of the light to the ceiling—the best method for illuminating classrooms. And they readily adapt to varying requirements . . . become an integral part of the room.

CIRCUIT BREAKER PANELBOARDS . . .
for modern circuit protection

School lighting systems are only as modern as the type and quality of the panelboards that back them up. Here's why:

Panelboards are the nerve center of a building's electrical system . . . the means of controlling and protecting the lighting, appliance and power circuits.

Modern electrical practices call for a panelboard like the Type NPLAB for lighting and appliance loads, at right. It provides circuit breaker protection—eliminating the danger of over or under fusing since there are no fuses to replace. Even inexperienced personnel can spot the tripped breaker after an overload. The breaker handle will have moved to a center position. By flipping it back, service is safely restored.

Further, the NPLAB houses more circuits in less space than most other panelboard types. It can be fabricated with blank spaces to provide for easy, economical addition of new circuits.

DP-5005-C

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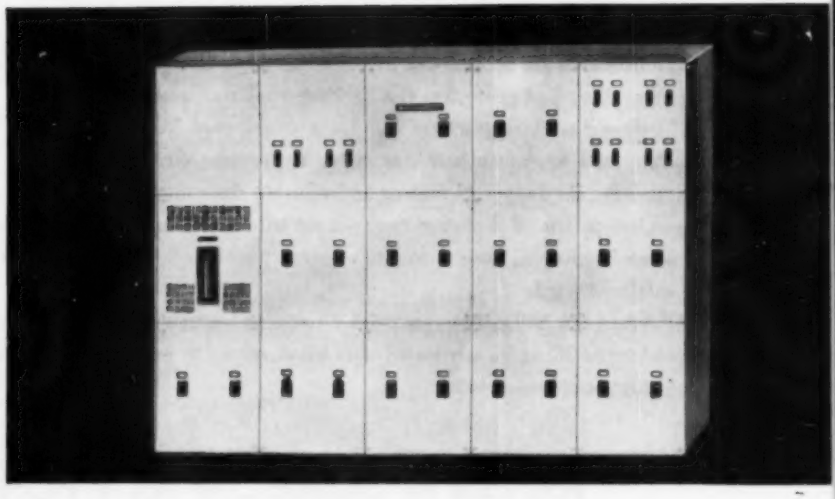
Coordinated Dry-Type Power Center—is the modern way to step down high-voltage power. Virtually a packaged substation that includes a transformer and air circuit breakers in a safe enclosure. Delivered to the building ready for immediate installation.



Building-Type Switchboard—the foundation of all electrically operated services when a building is supplied with low-voltage power. Provides positive circuit protection and switching equipment for incoming line and main feeders. Totally-enclosed sheet steel construction for added safety.
DP-5005-D

MODERN POWER CONTROL . . .

safe, convenient, flexible

Inclusion of modern power control and distribution facilities in your design planning means this: You will have provided for completely dependable and safe operation of a building's many power consuming services.

And more. Not only will you have covered today's ventilating and lighting needs, the cafeteria appliances and shop machines . . . but also any electrical requirements that develop in the future.

Consider the Building-Type Switchboard (lower left)—an example of modern distribution facilities. It is used when a school is supplied from a low-voltage power source. It contains in a single, compact unit the control for the incoming line and main distribution feeders. New sections can be added easily and economically because all parts are standardized.

Consider the Coordinated Power Center (at upper left). Here is a packaged substation that reduces high voltage to utilization levels and provides modern circuit protection. Its dry-type transformer eliminates the vault required for liquid filled transformers and reduces maintenance. It is housed in a compact steel enclosure for maximum safety to personnel.

Other examples of the kind of equipment that goes with modern electrical practices are shown at right. DP-5005-E

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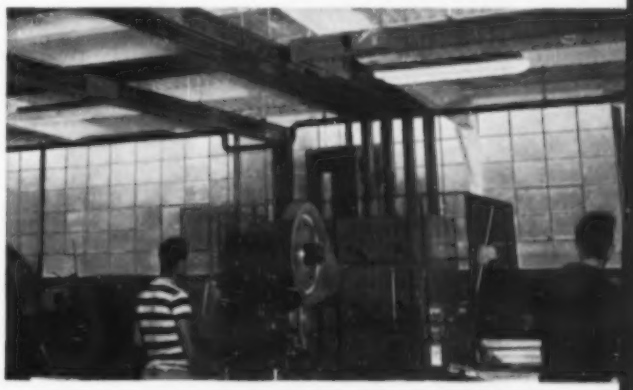
Linestarter—in shops and utility rooms. Provides special control for starting, stopping and protecting the many motors in today's buildings. Groups of Linestarters in a single enclosure become a control center.

AB-I Circuit Breaker—protects circuits and students wherever power equipment is used. No fuses to replace. No danger of over or under fusing. After overloads, service is safely restored by flipping handle on outside of enclosure.



Bus Duct—the modern method of distributing power throughout the building. Plug-in type, above, is ideal for manual training departments and machine shops. Plug-ins every foot make it easy to relocate the machines.

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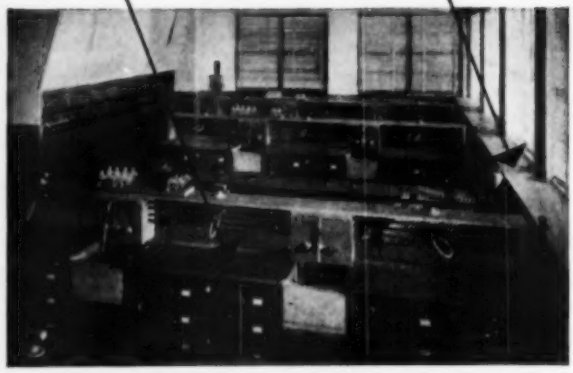

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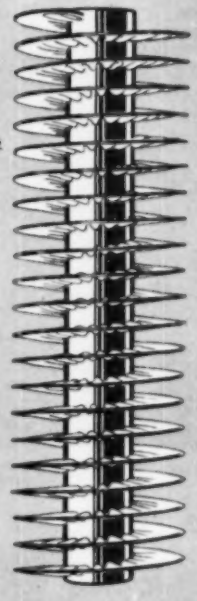

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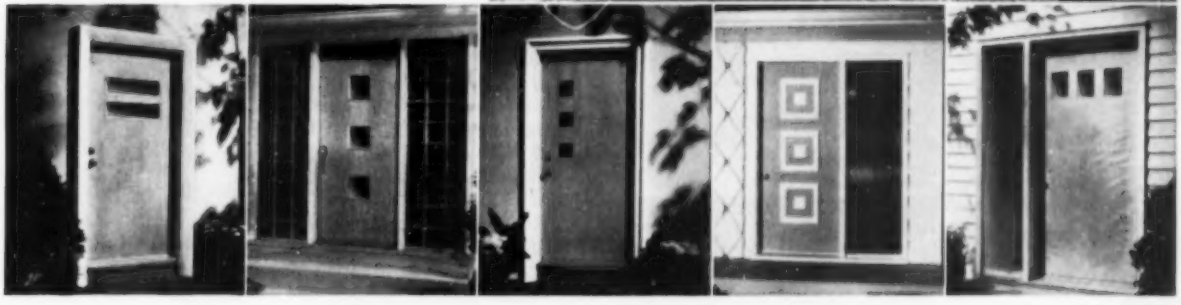

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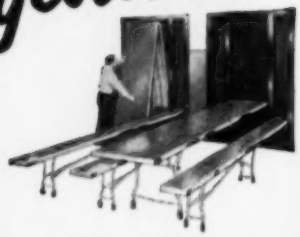

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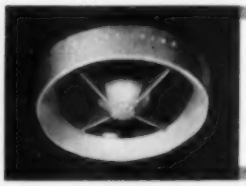

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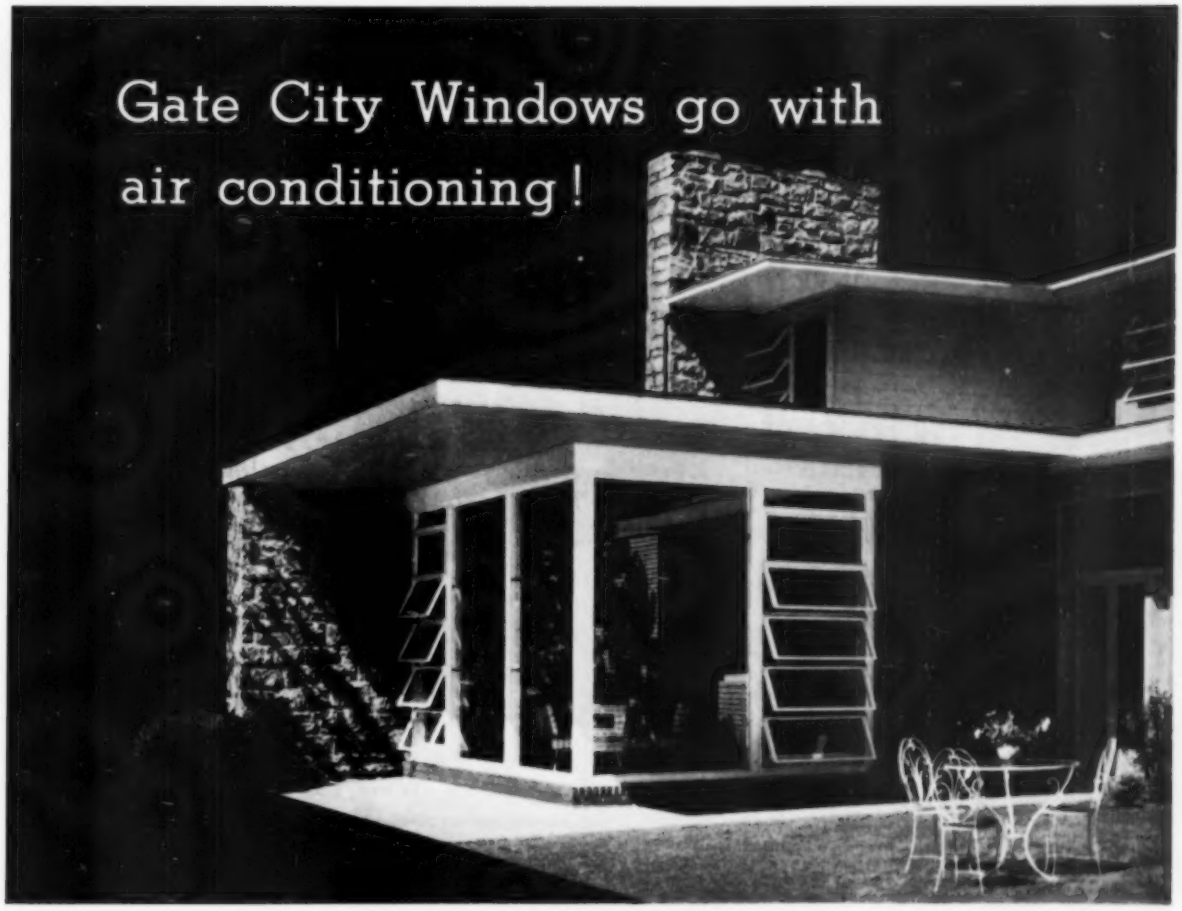

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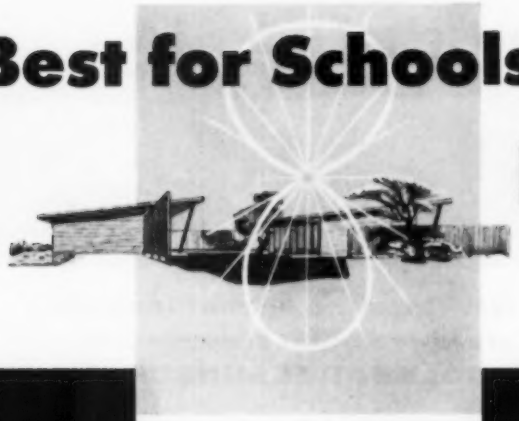

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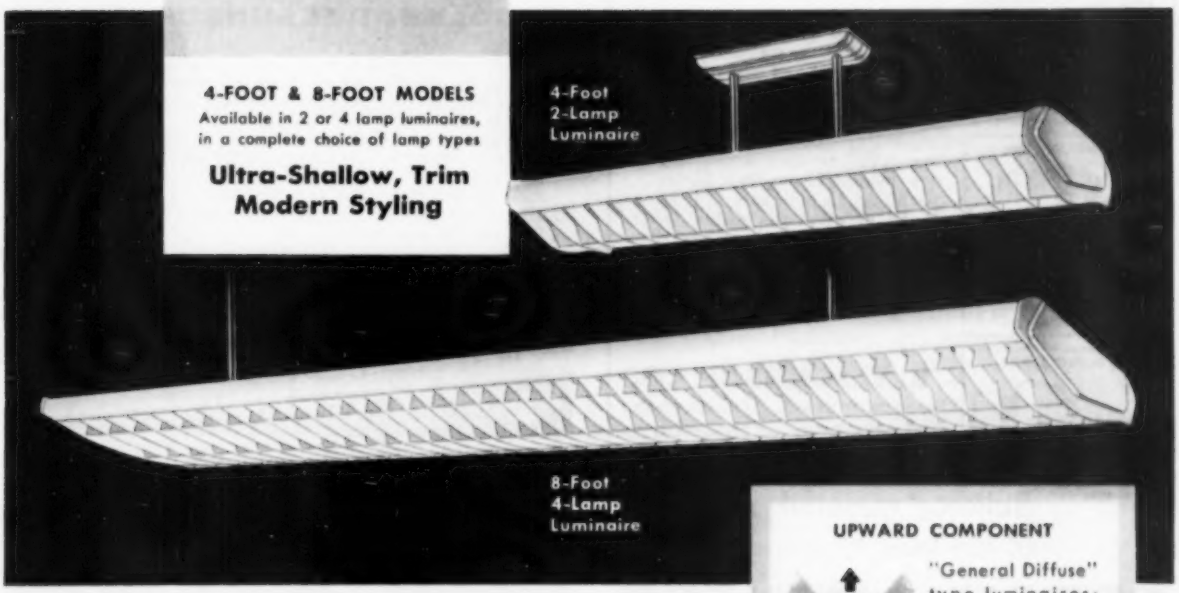

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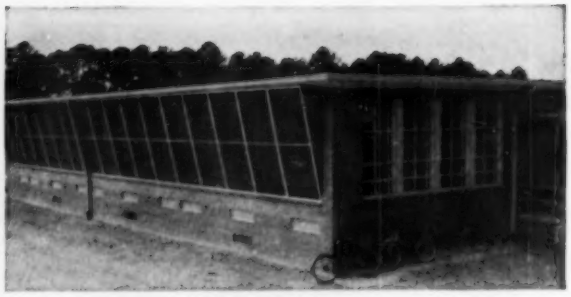

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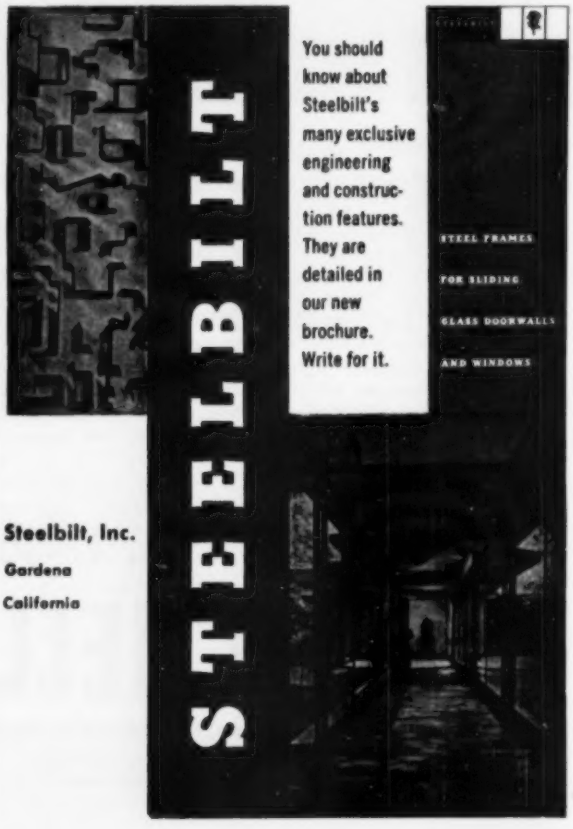
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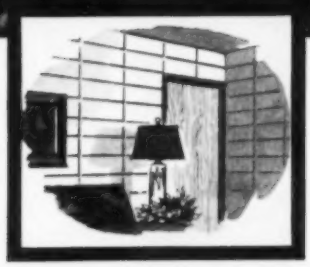

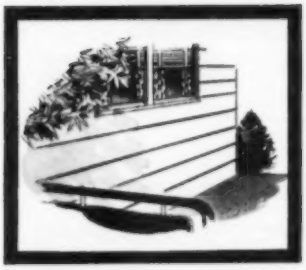

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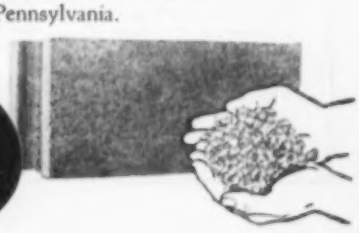

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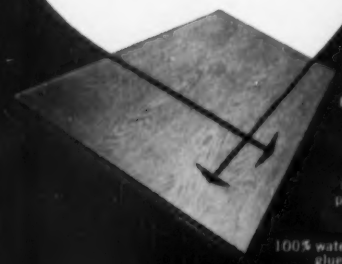

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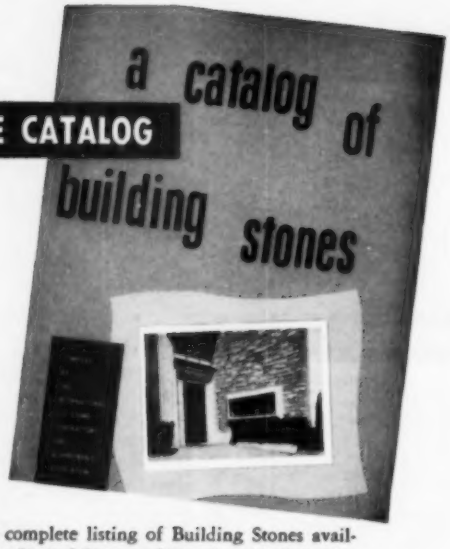

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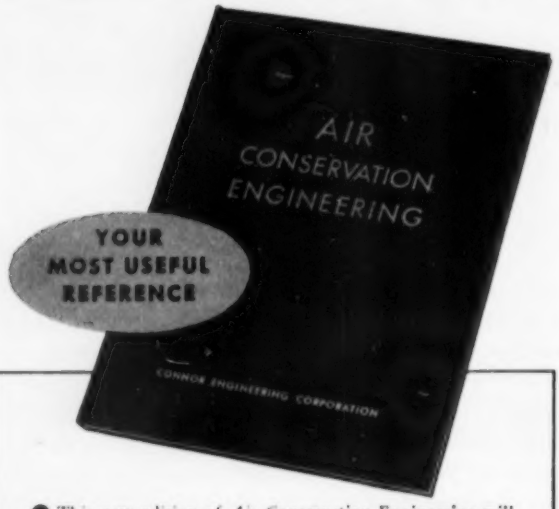

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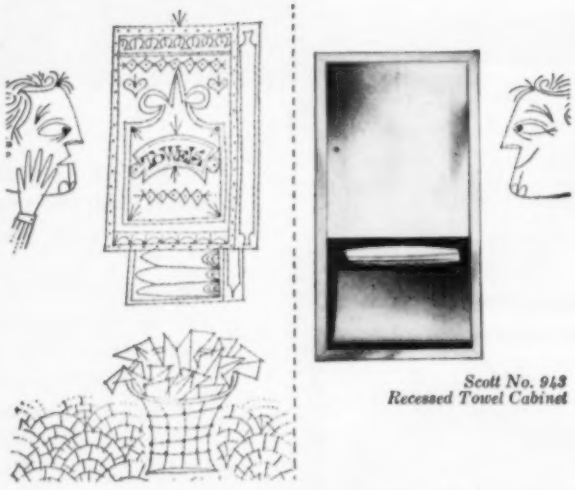

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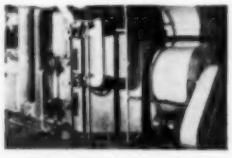

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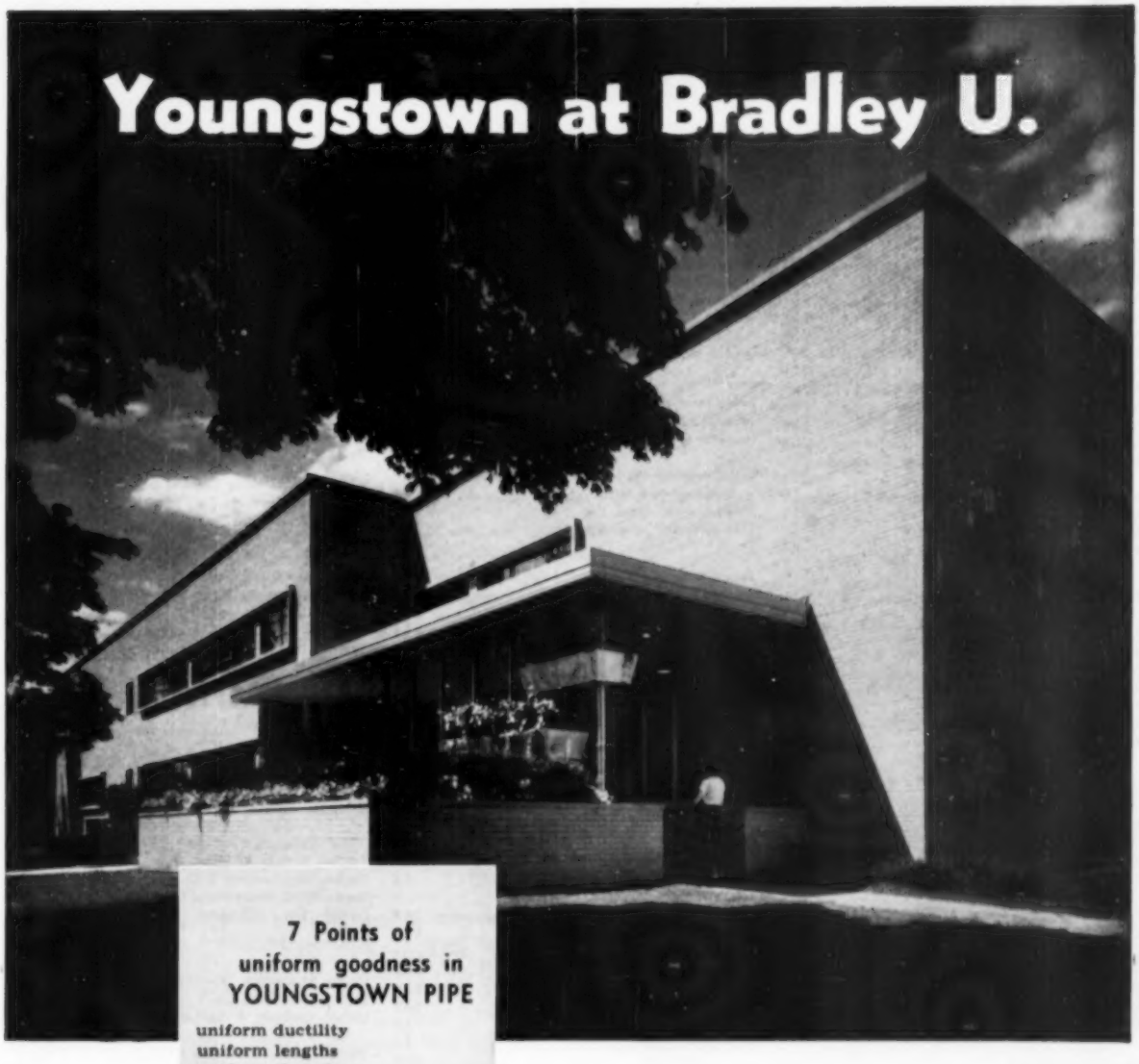

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P.S.

Some of you may recall that a few months ago I commented on Ernie Kump's claim to literary endeavor, and published on this page a simianesque photo alleged to have been snapped in Switzerland, where my good architectural philosopher friend is resting, jotting down profound thoughts on architectonics. The magazine has found its way to those distant retreats, and I have an appreciative note from Monsieur Kump. With the thought that his many friends may want news of his new triumphs, here it is:

28 May 1954, Switzerland

Dear Tom: When one has the good fortune to become a prima donna—or as the French say, an "etoile"—overnight, seldom if ever is the proper credit given to that which caused it to be. However, little perhaps do you realize the tremendous powers of destiny at your command in molding the life of an anonymous architect struggling for a place in the sun. I refer to your recent reference to my literary activities in Europe in PROGRESSIVE ARCHITECTURE. To be more specific, for the benefit of those who read the opened mail on your desk—Phil Hubbard, for example,—it is on page 238 of May 1954 P/A.

Of course, in addition, to have the further good fortune of having a recent photograph of myself at work accompanying the article is nothing less than fabulous (the lifetime dream of any architect). I guess that there is really nothing left now except an exclusive issue covering my personal philosophy on architecture, hitherto unpublished works, and an intimate glimpse into the techniques that I use inside and outside of the office (the real secret of any man's success).

With no further ado, let me tell you of a few of the reactions that have been stirred up. I have been offered a contract for an immediate appearance on television. Hollywood has asked for the exclusive on my book as a sequel to *The Fountainhead* if I would name names. They suggested as a title, *The Knucklehead*. After seeing the picture of me a large drug manufacturer has asked if I would endorse their new male sex hormone tablets, and a large whiskey manufacturer has offered to publish the picture nationally as a man of distinction, if I would substitute a highball glass for the typewriter. I am really a little puzzled though, Tom, as to whether the last two offers would be in good taste, and as to what the AIA would say. I will cherish your advice as to what would be proper.

Concerning my experience, Tom, don't you think that it would be of untold benefit to thousands of architects if your magazine would include a service giving advice on confidential questions submitted by architects covering moral and ethical situations that they have gotten themselves into and would like to confide in someone for a bit of fatherly advice? You know, such as is run in the various newspapers for confused souls. For, after all, there is really more to architecture than merely cold technique. There are also human problems, such as cutting the fee to get a job (to save a client from hiring an architect whose work is eclectic and who lacks a progressive philosophy), or to associate with an architect whose work one does not respect (in order to establish a reputation), and many others that I could cite.

Well, Tom, after much anguish, both mental and moral, I came to the conclusion, that in view of the great turn of events with respect to my personal future as the result of your article, there was little else that I could do than to give credit where credit is due. And knowing of your great personal magnanimity, if I were confronting you now I can just hear what your response would be: "Oh, Ernie, it was nothing r-e-a-l-l-y, nothing at all!"

Believe me, in all sincerity,
ERNEST J. KUMP, Architect
AIA, AB, M. Arch., FRSA
Author, Consultant, RSVP

•

Well, I've missed the first AIA Convention in many years; spending the time usually passed in open meetings and smoke-filled rooms looking at the view north along the East River from a comfortable room in New York Hospital. Nurses instead of delegates, fruit juice replacing the highballs, the endless drone of McCarthy and Welch on the bedside radio instead of the gossip of good friends from all parts of the country. It was frustrating and disappointing, but word during the week from visitors to the P/A Suite kept me pleasantly, if inaccurately, in touch with what was going on in Boston. To those who wrote, wired, and called, my heartfelt thanks!

Since I've been home (doing a very occasional job of work for the magazine) I've had a wonderful illustration of the subjectivity of reporting. People passing through New York on their way home from Boston have told us about the Convention, and the reports have ranged from "the best one ever" to "a complete waste of time." I don't know what to think, and I realize now that my own past reports must have been completely at variance with many of their own reactions. Whether such a meeting is a success or not, to any individual, must depend on (a) one's frame of mind to begin with, (b) the number of old friends one meets during the week, (c) which particular meetings or seminars one attends, and (d) whether the candidates one favors are elected.

•

I understand that *Architectural Forum* is drawing solace from a report, on which I commented on this page some months ago, on reading habits of architects. I spoke of P/A by name in that column, and identified two other publications simply as Magazine A and Magazine B. Magazine A, I reported, drew a certain support from the profession because of its interest in business and finance. The *Forum* is proclaiming happily that it is Magazine A.

Perhaps so. As far as I am concerned, I am pleased by any indication that the professional magazines serving architecture have recognizable, distinctive characters of their own. If it is solace to one that it has become the big-business mazazine, it is to me also. Because that same survey indicated that P/A is recognized as the magazine concerned with the architect's business — design, materials and methods of construction, detailing, office practice, legal problems, public relations, specification writing, architectural education, and so on. Fair enough! But what emphasis does that leave Magazine B? Ah well, that's not my problem.

•

Speaking of interest in the business of architecture, I am most touched and honored at having been made the first honorary member of the Construction Specifications Institute. This fairly young organization has grown tremendously in recent years—in membership, in prestige, in number of chapters, in activities. It is a live group, with an active, hard-working membership—a great contrast to some of the old-line professional organizations which seem unsure of their purpose and vague as to their future. Those of you architects who are concerned with improved writing of specifications would do well to investigate CSI, read its excellent publication, and support its aims. I am happy and proud to have the beautifully designed, hand-lettered parchment which signifies my honorary membership.

•

I think that this will be a short postscript this month. Odd thing — I had always supposed that a period of enforced idling would induce all sorts of deep thoughts about architecture and architectural journalism. I find the reverse is true. Activity and contacts seem to breed ideas and spark what inspiration is ignitable. Lying on my back seems—for me—to result in mental lethargy. At least I've caught up on nonarchitectural reading matter. The current crop, it seems to me, is just about like current architecture—an occasional exciting high spot, the general level—well, let's say, *competent*. Be with you next month, in a more optimistic mood.

Thomas H. Creighton

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